



First Aero Weekly in the World

Founder and Editor: STANLEY SPOONER

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DIARY OF FORTHCOMING EVENTS.

Secretaries are invited to keep us informed as to fixtures, meetings, etc.

Sept. 10	....	Jacques Schneider Cup Race, Bournemouth.
Oct. 5	....	Aviation Meeting at Barcelona.
Nov.	..	Entrance Examination for R.A.F. College.
Dec. 19 to ..		Paris Aero Show.
Jan. 4, 1920.		

EDITORIAL COMMENT



F the report, which at the time of writing lacks confirmation, that practically the whole of the German Zeppelin fleet, which, under the terms of the Peace Treaty, was to have been handed over to the Allies, has been wilfully destroyed by the Huns is established, another example of

German bad faith will have been added to the already long list. If the report be true, it is highly probable

An Aeronautic Scapa

the German Government had any foreknowledge, since however much it may have wrung their heartstrings to be compelled to surrender these craft to their late enemies, we must at least credit them with the desire to avoid saddling Germany with any further financial burden such as the destruction of the Zeppelin fleet would undoubtedly entail. The alleged

act would seem more likely to have been planned and perpetrated by a number of airship officers, whose peculiar brand of "patriotism" got the better of their discretion. We will not say their sense of honour, for the sufficient reason that the Hun will have to undergo a very long and severe period of probation before we can ever again credit him with the possession of such a sense.

What is said to have happened is that the giant craft, in order to save the cost of hydrogen, were kept deflated and slung by cables from the roofs of their sheds. Hence the wrecking of the ships would be rendered easy, since it would only be necessary to cut the suspensory cables and allow the craft to drop, when the weight would simply crush them virtually beyond repair. There are no important secrets regarding the construction of these craft which are not fully known to the Allies, so that the loss would be simply represented by the amount of the material damage, and as that would fall upon the Germans it need not be a matter for too deep regret. As a matter of fact, if such an act of *sabotage*, reprehensible as it would be, would in all probability save some amount of jealousy and heartburning regarding the distribution of the German airship fleet, and to that extent the Allies would be rid of a source of possible embarrassment. That, however, is not a matter which in any case should be allowed to concern the German Government. In addition to the indemnity which Germany would have to pay for the non-surrender of the destroyed craft, there would arise the question of the punishment of those responsible for their destruction in defiance of the terms accepted by our late enemy. Even the Hun must be taught that "scraps of paper" when they are solemnly subscribed to by civilised nations are meant to be honoured, and that if the individual by his irresponsible acts chooses to vitiate them, he not only exposes his country to punishment for bad faith, but he himself must suffer in his own person. So far as concerns the sinking of the ships at Scapa, the Allies have the remedy in their own hands, since they hold in custody the persons of those responsible. In the matter of the reported destruction of the Zeppelins, the case is not quite parallel. The warships were sunk while we were still technically at War with Germany and in distinct breach of the conditions of the Armistice. The Zeppelins are said to have been destroyed after peace has been signed, and it would seem that in such case the punishment of the guilty would be more a matter

for the German Government than for ourselves. Probably the best course to be pursued, if the report be confirmed, is for the Allies to notify the German Government that they expect the cash value of the destroyed craft to be paid over, and also that in default of the punishment of the perpetrators of so gross an act of *sabotage* a further monetary penalty will be exacted.

The Paris Air Service

To say that we congratulate the promoters of the recently opened London-Paris air service on the auspicious start they have made, would be too mild a way of putting it. There are so many things upon which we should have to congratulate the firms concerned, that the task would be beyond us. The service was inaugurated on Monday of last week, and a worse week from the point of view of the weather conditions obtaining it would be difficult to imagine. Monday was not so bad, but the record of the winds encountered during the rest of the week makes interesting reading. On Tuesday 40 miles an hour was the average force of the wind. On Wednesday it was between 35 and 40 miles an hour, but on Thursday it blew with hurricane force, 100 miles an hour being recorded. Friday was a bad day, owing to low clouds and rain, and on Saturday the wind blew at the rate of 20 miles an hour, with low clouds, which made visibility poor.

In face of these adverse conditions it might be thought that the service was either abandoned or was at least irregular. Quite the contrary, for it was carried out to schedule every day except on Wednesday, when the London to Paris machine did not start, the passengers being diverted to an alternative route because the wind was blowing in gusts at hurricane force, rain was descending with torrential violence and masses of clouds were within 100 feet of the ground. But even on this day the Paris to London journey was safely and successfully accomplished, the trip being made in 1 hr. 50 mins. Incidentally the average time occupied over the 250 miles, representing the direct distance between the two capitals, was 2½ hours.

That a regular service, running to time-table, has been established at all is very much to the good when it is realised that it is just this regularity and dependability which is needed to give confidence in the new transport to the travelling public; but that it should have been inaugurated and maintained with such conspicuous success during so tempestuous a week as the last seven days of August, is one of the highest tributes to the safety and efficiency of the aeroplane, for which we could ask. It has been shown that the aeroplane is not the mere plaything of the elements that some would have us think. We have repeatedly heard it said that the aeroplane can have no real and assured place as a means of transport owing to the limitations imposed upon its action by conditions of weather. The business man, to whom speed of travel appeals most, must, it is very properly argued, be assured that allied to speed there is certainty. Potential speed is of no use to him if, for example, he has wired to Paris that he will arrive by air at a certain time only to find that owing to adverse weather conditions the service by which he is booked is unable to start. It is actual, not potential, speed of which he wants to be assured. For the immediate future it should be sufficient to reply to this line of argument by quoting the ex-

periences of the first week's service between the French and British capitals. We certainly think we are justified in claiming that it has established that there is nothing in the way of weather which is likely to stop such relatively short-distance service which cannot be foretold at least 24 hours in advance. That should certainly be sufficient in most cases to determine the person who contemplates a business journey whether he will go by air, or if the conditions are likely to be so bad that he would be better advised to take train and boat. Once again we congratulate Aircraft Travel and Transport on the outstanding success of their venture and on the invaluable demonstration they have given of the reliability of the aeroplane as a vehicle of transport.

The Government Prizes

It was hardly to be expected that the regulations governing the competition for the Government prizes for commercial aircraft would escape criticism. We note that a correspondent of the *Times*, evidently a constructor, though he contents himself with the use of initials, says in so many words that the result of the competition will not be in any way beneficial to commercial aviation. If aircraft are to be used in commerce, he says, it is the business men of the country who must decide where they can use them beneficially in their organisation, and in order to do this they must know: the actual cost of aerial transport per ton mile; the degree of reliability on which they can count; and the average speed of transport of which they can be assured. The Government competition does not, he holds, assist in any way in this education of the future users of commercial aircraft.

It appears to us that the *Times* correspondent falls foul of the competition on wrong lines. It may be perfectly true that the regulations are not perfect—nothing is in this world—but we are unable to agree that in these initial days of commercial aviation it is possible to travel as fast as he would have us do. Admitting that it is very necessary that the business community should be properly and thoroughly educated along the lines he indicates, it must be pointed out before any assurances can be given on the three heads we have quoted from his letter it is essential to evolve machines which possess the necessary factor of safety, reliability and speed, which will enable the possibilities to be reduced to a common denominator. That is the intention we read into the regulations—that the competition is designed to assist in the evolution of the best types of commercial aircraft as opposed to the super-efficient war machine, in which a large margin of safety is sacrificed for the sake of attaining other qualities essential in the machine for combat, but totally unnecessary for commercial work. It seems to follow that once the true commercial types have been more or less decided—we had almost said standardised, but that is too definite a term to use at the present stage of development—the rest will follow as a matter of course. Once we have attained to the essential standard of safety and reliability it will be possible to definitely answer the three questions postulated. We shall be able to say with certainty what the cost per ton mile of aerial transport will be. We shall know also what the factor of reliability is, and the average speed of transport it is safe to assure to the business community. All these things, however, must be done in

Flight—And the Men



"Flight" Copyright.

Lieut.-Col. J. T. C. MOORE-BRABAZON, M.P., a well-known member of the Committee of the Royal Aero Club, who took a leading part in organising the photographic section of the R.A.F.

stages. We must not ignore the fact that we are really only now on the threshold of commercial aviation. The aeroplane has developed enormously as a result of the War, and we believe it has developed along such lines that we have really but a short distance to travel towards the true commercial type. But after all, we do not know this with certainty yet, and it is in order, as we judge, that we may make assurance sure that the regulations for the Government competition have been drawn as they have. We are as anxious for progress as any, but we do think that with so much of the future at stake the Air Ministry has done well to take *Festina Lente* as the motto for to-day.

French Airship Services

It is being freely commented upon that while the British Government is stopping the building of airships, France is embarking on the construction of four rigid airships for commercial purposes, and proposes to run an experimental service with them. When, it is stated, sufficient data have been accumulated as a result of the proposed services, the airships will be handed over to a civil transport company, together with all the information gained during the experimental stage. Government aerodromes will be placed at the disposal of the company, and an arrangement come to between the Government and the company as to subsidy, charges, and so forth.

We have a shrewd idea that this is very much what our own Government is doing, except that the experimental work has already, in our case, been done. We indicated as much last week when writing on the subject of airships and airship services. As a matter of fact we understand that certain negotiations are taking place between the Government and a very powerful group identified with shipping and transport interests for the taking over and running commercially of certain of the completed and uncompleted rigid airships recently handed over by the Admiralty to the Air Ministry. Until the results of these negotiations are known it would be futile to indulge in criticism of the Government policy towards airships and their commercial use, or to contrast the policy of France with our own.

The Future of the R.A.F.

There is one aspect of the successful inauguration of the cross-Channel air services which we have not dealt with in our article on the success of the enterprise, for the reason that it stands by itself and thus merits special consideration. It is perfectly clear that these services are only the first of many which will, in the practical assurance of success we now have, spring up in many directions. These services will, as a matter of course, employ large numbers of highly skilled pilots, and even greater numbers of well-trained mechanics, expert and up-to-date in their knowledge of flying and the successful upkeep of aircraft. It stands to reason that this great personnel will stand to the country in the relation of

a great flying reserve against the possibility of another War, particularly if the Government looks kindly upon the proposal to form a Territorial Air Force. Now it is clear that we do not want it both ways. If we have a large and highly qualified reserve of pilots and mechanics, it follows that we can for a time do with a smaller Regular force than we should need if there were no such reserve. We have always stood for aerial preparedness, and we do not intend to depart from the attitude we have always preserved in this matter, but the need for national economy is very pressing, and having regard to the circumstances now opening up in regard to the future of commercial aviation, there is not necessarily the same need to keep on the active list of the R.A.F. an establishment of flying officers approximate in numbers to a reasonable war strength of the air service.

We imagine that there will be very few who will quarrel with the general principle thus laid down, but even though we ourselves, with qualifications, subscribe to it, there is need to approach the subject with some amount of caution. In the light of reductions which have already been made in the strength of the R.A.F. and in view of still further possible reductions, there is already talk of the possibility of a return of War Office control and the abolition of the Air Ministry as a separate entity, of course in the sacred name of economy. There seems to be very little doubt that the War Office is still sore at having lost control of the Air Service and would dearly like to get it back. That certain strings are being pulled to ensure this is fairly certain, though we do not believe that for the present at any rate the intriguers have the slightest chance of succeeding in their design.

Economy in administration is an excellent thing in its way, but it can go badly wrong in practice, and we are more than ever convinced that to revert now to the system which was proved to be bad in the War would be a fatal reversal of policy and one to be fought against tooth and nail by all who are interested in the true development of aviation, military or civil. War Office control of aviation resulted in our entering the War in a state of unpreparedness, which was tragical in comparison with the efficiency of the enemy air service. Not until production was taken over from the Army Council did we ever look like obtaining the excess of air power over the Germans which was essential to victory. The truth is that the business of the Army Council was—and is—to run the affairs of the Army, and that it failed to understand that aerial war must be made by men who understand it and who are not tied to the traditions of the Three Arms. As well run the Navy from the Horse Guards as try to preserve our aerial position from the War Office. It has been quite rightly decided—after a bitter price had been paid for past mistakes—that the Air Service is a service apart from either Navy or Army, even though it works in co-operation with both, as they do with each other. It is so and must remain so.

The Folkestone-Cologne Mail Service

DURING the week ending August 16 the R.A.F. aerial mail service from Lympne to Cologne carried no less than 7,090 lbs. of letters and postal packets.

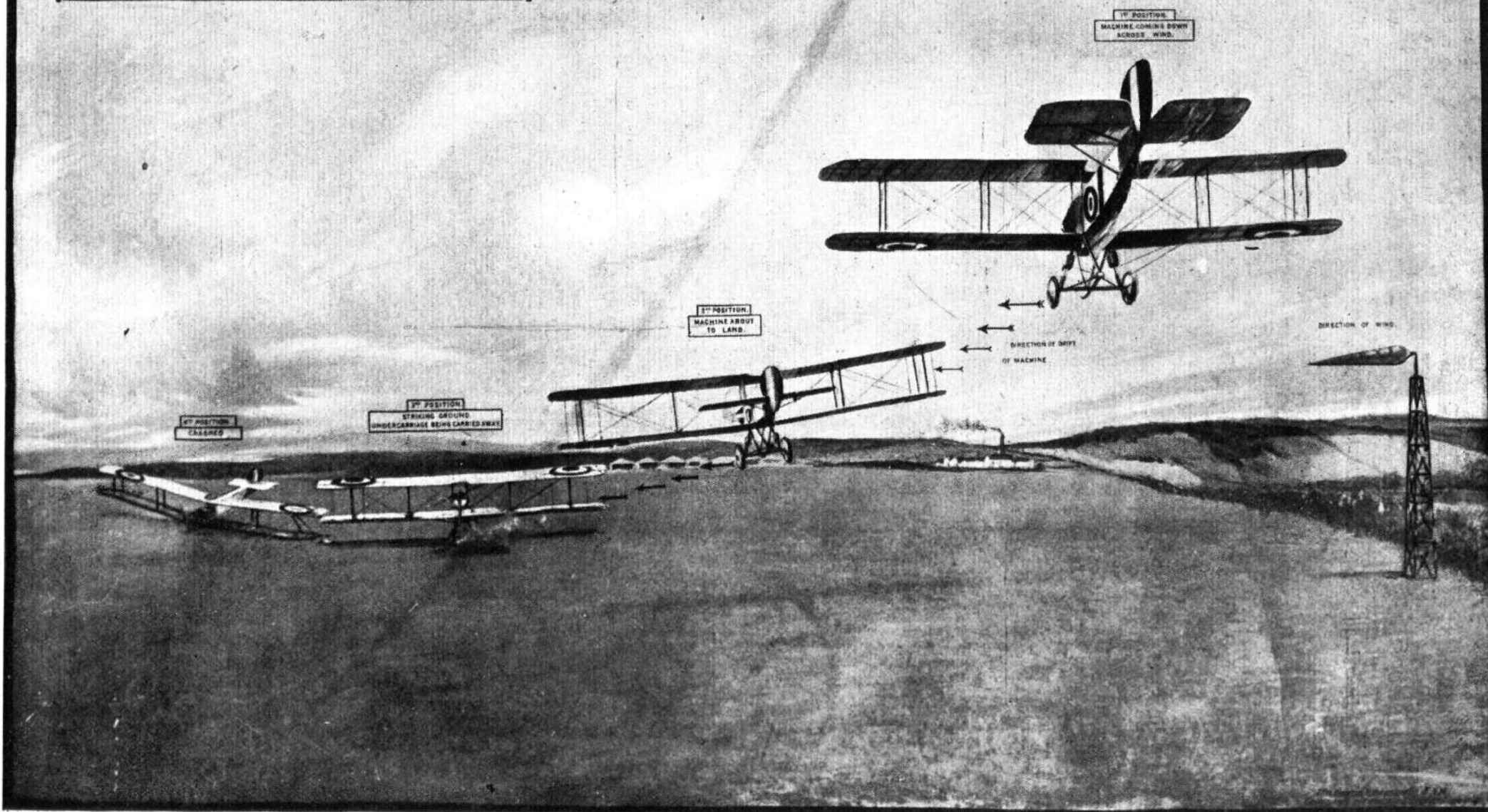
The service is carried on by two squadrons, Nos. 18 and 120. The former is using D.H.9A machines with Liberty engines, and is working from the Cologne terminal, while the latter is equipped with the D.H. 9 type with B.H.P. engines, and works from Lympne.

The average time taken by machines of No. 18 on the journey is 3 hrs. 14 mins., while No. 120, with rather less powerful engines, average 3 hrs. 23 mins.

The intermediate stage at Maisconcolle is now cut out, and the machines fly through without a stop. Out of 45 trips commenced, only in one case was there failure to complete the journey. The average weight carried per journey was 161 lbs. We understand that, consequent upon the rapid demobilisation of our forces in Germany, the service was discontinued on Monday last.

A LANDING SHOULD BE MADE "UP WIND" WHENEVER POSSIBLE. LANDING "ACROSS WIND" IS A "STUNT" REQUIRING CONSIDERABLE SKILL AND SHOULD NOT BE ATTEMPTED BY A BEGINNER.

THE ILLUSTRATION IS INTENDED AS A WARNING AGAINST ATTEMPTING AN ORDINARY LANDING "ACROSS WIND."



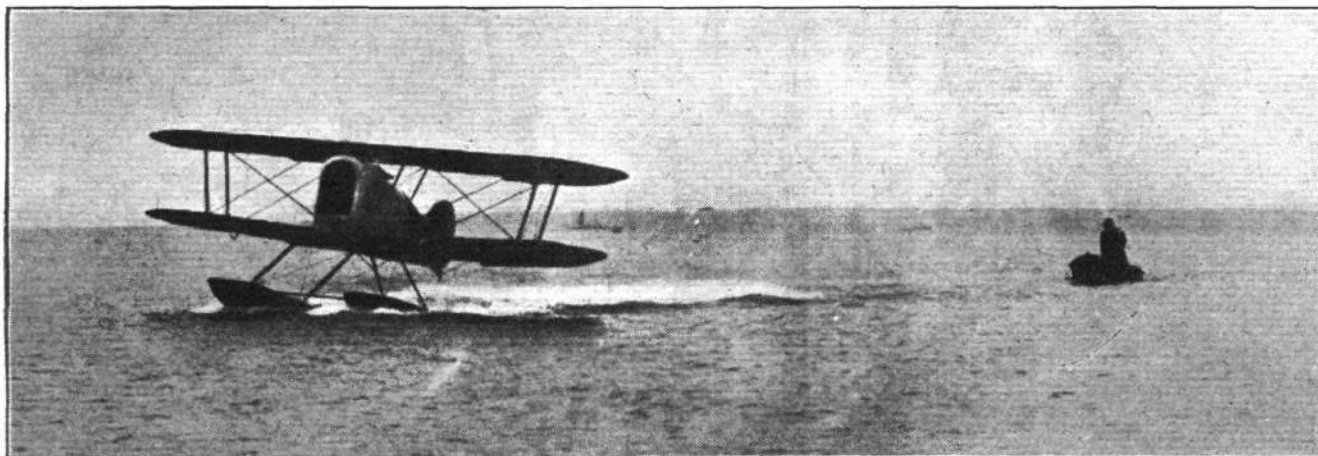
Landing Across Wind. (Drawing published by the Air Technical Services for use at R.A.F. Schools.)

THE JACQUES SCHNEIDER CUP RACE

ON Wednesday of next week, September 10, the seaplane race for the Schneider Cup and Prize will be flown at Bournemouth. Owing to the short notice given, there are doubtless many constructors who would have liked to enter machines for this race, but who have been unable to get machines finished in time. The consequence is that comparatively few competitors have been entered. Italy is represented by only one machine, France by three. America has not entered any. After the great development in aircraft during the War it might have been expected that a contest like the Schneider Cup Race would have attracted a greater number of entrants, not only from abroad, but also from this country. However, it appears that as it is Britain will be the only country to enter enough machines to necessitate the holding

be of great importance if the weather happens to be rough. It is, in fact, this feature of the race which will give some of the slower sturdier machines a chance in what would otherwise be purely a speed race. Again, if it were announced beforehand where the machines must alight, this would afford spectators an opportunity to watch the race from some point close to the place of alighting, which is likely to prove, in some respects, considerably more interesting than the actual air racing.

Presumably the competing machines will carry some form of identification marks or numbers, but up to the present no announcement has been made concerning these. It might have been expected that such a race as this would be taken the fullest advantage of to assist in popularising



THE AVRO-PUMA SCHNEIDER CUP SEAPLANE: Coming in after a successful trial flight at Hamble, on August 29

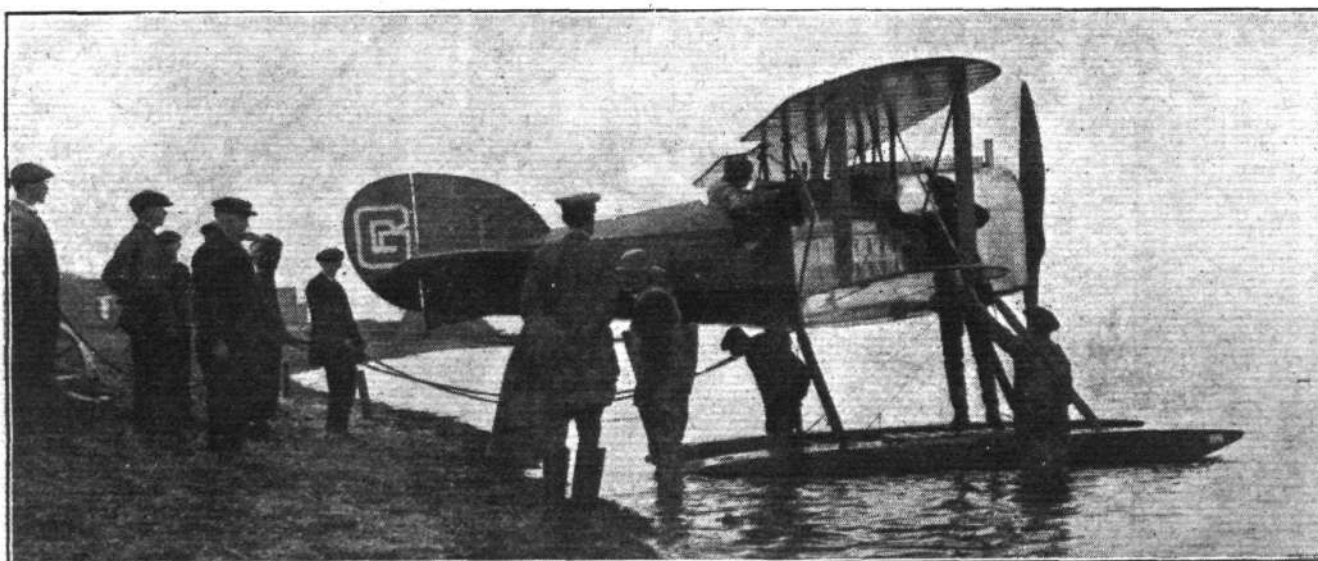
of elimination trials, usually not the least interesting feature of the Schneider Cup Race. These elimination trials will, we understand, be held at Cowes on Wednesday of this week, when it will be decided which of the four entrants will have to withdraw from the final race at Bournemouth. As announced last week, the course is a triangle with Bournemouth as the starting and finishing point, the two other angles being at Swanage and Christchurch respectively. The actual length of the course is about 20 nautical miles, and as the race is to be flown over a distance of 200 nautical miles, competitors will have to make ten laps of the course. The machines, should, if the weather is reasonably clear, be in sight throughout the race, while a close view of them will be obtainable from either Bournemouth, Swanage or Christchurch. As in 1914 competitors must, during the first lap of the course, make two alightings on the sea at points indicated by the officials. No information is available yet as to the exact location of these two points, although this may

aviation, but it does not appear that as much has been made of the opportunity as might have been, by those responsible for the organisation of the race.

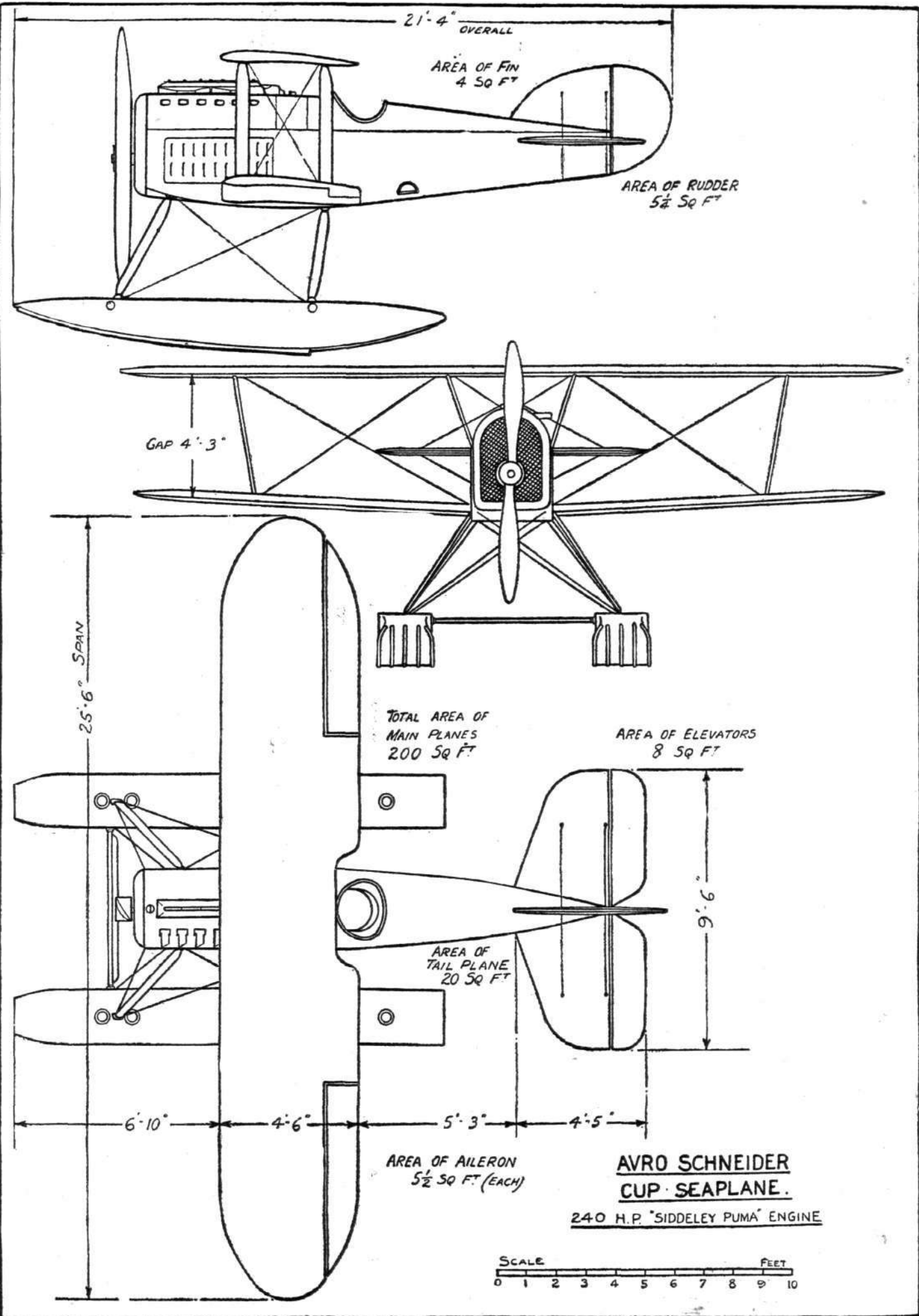
The Machines

If all the machines entered start in the race, and after eliminating one of the four British entrants, the contest will be between seven machines. The four entered by this country are: Avro tractor seaplane, 240 h.p. Siddeley "Puma" engine, pilot Capt. Hamersley, M.C.; Fairey tractor seaplane, 450 h.p. Napier "Lion" engine, pilot, Lieut.-Col. Vincent Nicholl, D.S.O.; Sopwith tractor seaplane, 450 h.p. Cosmos "Jupiter" engine, pilot, Mr. H. G. Hawker, A.F.C.; Supermarine flying-boat, 450 h.p. Napier "Lion" engine, pilot, Squad.-Comdr. B. D. Hobbs, D.S.O., D.F.C.

The machines entered by France are: Two Nieuports, both with 300 h.p. Hispano-Suiza engines, one machine



THE AVRO-PUMA SCHNEIDER SEAPLANE: Preparing the machine for a trial flight. In the cockpit is Capt. Hamersley, M.C., who will pilot the machine in the race



THE AVRO SCHNEIDER CUP SEAPLANE.—Plan, side and front elevations, to scale

to be piloted by Malard, and the other by Casale. A Spad Herbemont, piloted by Sadi Lecoq. The Italian machine will be a Savoia flying-boat, Type S. 13, with 250 h.p. Isotta Fraschini engine, piloted by Janello.

The Avro Seaplane

As the accompanying illustrations will show, the Avro machine entered for the Schneider race is quite a small machine, its overall span being only 25 ft. 6 ins., and its length overall 21 ft. 4 ins. In general outline the Avro shows little resemblance to the other members of the Avro family; so little in fact that it would be impossible to identify it as an Avro from mere outward appearances. The detail construction, however, follows more or less standard Avro lines.

If for no other reason, the Avro would be of interest on account of the fact that it is fitted with the lowest powered engine entered in the race. The Siddeley "Puma" is rated at 240 h.p., whereas the next larger engine—the Isotta Fraschini fitted on the Italian Savoia flying-boat—is rated at 250 h.p.

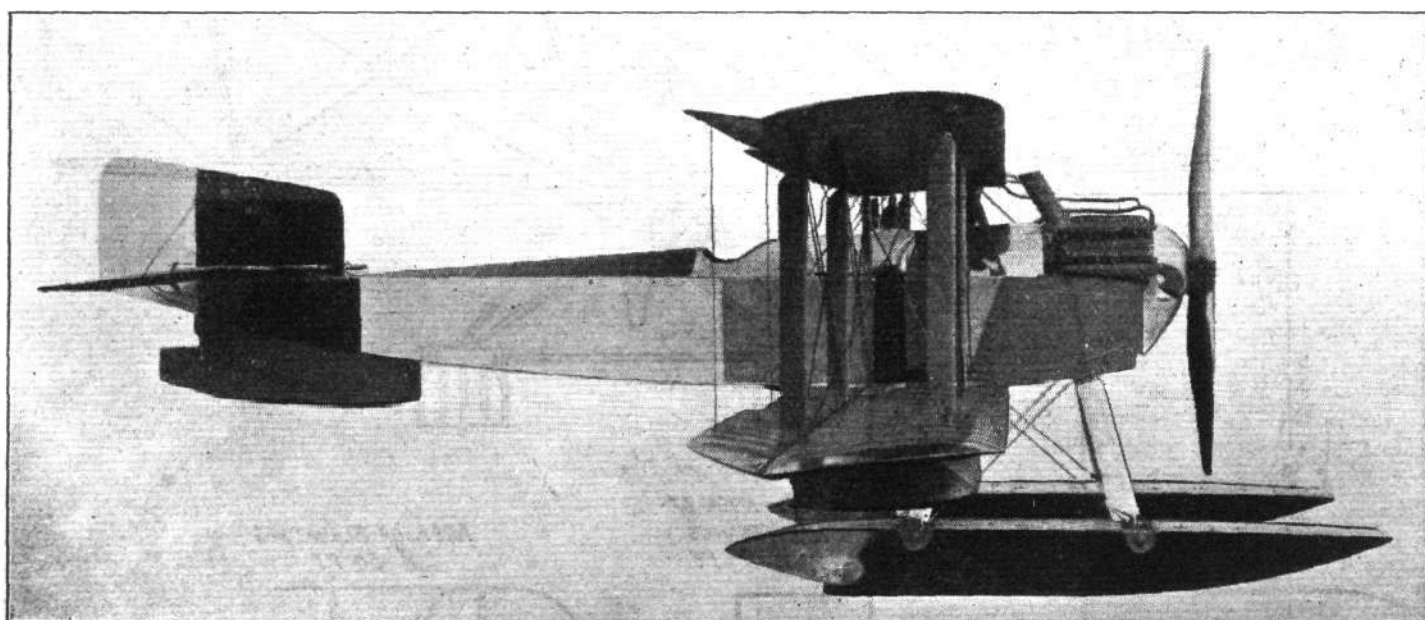
This low power, however, does not necessarily mean that the machine will not be fast. Avro machines have in the

One of the most interesting features of the Avro seaplane is the shape of the wing tips. From the plan view of the general arrangement drawings it will be seen that the tips are distinctly rounded, a fact which contrasts markedly with the usual square-tipped Avro wings. Otherwise the wings are characterised by a fairly high aspect ratio—nearly 6.

The top plane, which is in one piece, has no dihedral angle, but the shorter bottom plane is set at a very marked dihedral angle. There is only one pair of inter-plane struts on each side. Owing to the slight difference in span, the inter-plane struts are sloped so as to get the best load distribution. The centre section struts, or rather the struts supporting the centre of the top plane, are sloped outwards in the usual way to reduce the length of "free" spar in the top plane.

The tail surfaces also differ from the usual Avro tails. The fixed tail plane, which is of symmetrical section, is no longer rectangular, but is shaped as shown in the plan view. The addition of a fin, doubtlessly necessitated by the deep nose of the body and by the side area presented by the two long floats, changes the appearance of the tail, and the rudder has not the usual semi-circular balance which characterises so many other Avro machines.

Altogether the Avro seaplane, which, by the way, answers



THE SCHNEIDER CUP RACE.—The Fairey seaplane is similar in general design to the F 3. It is fitted with a 450 h.p. Napier "Lion" engine.

past proved very efficient, and there is no reason to suppose that the present type will prove an exception. Naturally the makers are not anxious to give particulars of performance at the present time, but the small size of the machine, combined with the careful streamlining of all exposed component parts, should give her quite a good turn of speed.

The fuselage is of rectangular section as regards its main structure, and is surmounted by a curved top which in front encloses all but the top of the cylinders of the "Puma" engine. The six exhaust pipes project horizontally through the top covering of the body. Behind the pilot's cockpit the deck fairing is fairly deep to form a fairing for the pilot's head.

The upper longerons, it will be noticed, are straight and horizontal, thus forming a good datum line from which to true up the fuselage.

The radiator is placed in the nose of the fuselage, motor car fashion, and is of generous proportions. The result is that the body does not taper off towards the nose, as is the case in the Avro Baby, for instance, but has its sides parallel from the neighbourhood of the pilot's cockpit. The warm air is allowed to escape from the engine-housing through louvres in the side of the aluminium cowl.

A chassis structure of streamline steel tubes carries the two floats, which are of considerable length (14 ft.), and have one small step, occurring immediately underneath the rear chassis strut attachment. No tail float is fitted, the main floats being so placed as to make this unnecessary. The floats are placed fairly far apart, their track being 7 ft., and with the short span bottom plane avoid the use of wing-tip floats.

to the series number 539A, impresses one as being a very serviceable little machine, not only for the race contemplated, but also for purposes other than racing.

The Fairey Seaplane

Concerning the seaplane entered by the Fairey Aviation Co. little information is at present available. The machine, as shown in the accompanying photograph, has a strong family resemblance to previous Fairey machines, particularly to the type 3. As, however, the Schneider race is chiefly a speed contest, the wing surface has been reduced, while a higher-powered engine—a 450 h.p. Napier "Lion"—has been fitted.

The race is of such a comparatively short duration that the amount of fuel to be carried is very much smaller than the standard load of the type 3, and consequently the wing loading will probably not work out very much heavier than the standard. The main feature of this, as of previous Fairey seaplanes, is the variable camber wings.

The manner in which the camber is varied during flight is very simple and effective, and constitutes, we believe, a Fairey patent. The whole trailing portion of the wings hinges to the rear spar after the fashion of the usual aileron. It is divided some distance out, and the outer portion constitutes the aileron and works independently of the position of the inner portion, which is operated by a wheel in the pilot's cockpit.

For quick taking-off and for alighting, the trailing portion is pulled down so as to form an angle with the fixed part of the wing, thus virtually increasing the camber;



THE SOPWITH SCHNEIDER SEAPLANE: Three-quarter front view

the curve formed is not, of course, a smooth one, but has a marked break in it. For speed work the hinged trailing portion is pulled up to, or above, the line of the actual wing section, thus giving if desired a reflex curvature to the trailing portion of the section. The speed variation obtainable in this manner is very considerable, and results in a reasonably low landing-speed, even with a high loading per square foot.

The undercarriage of the Fairey seaplane is of very strong construction, and if the day of the race happens to be a very rough one, the Fairey machine may be able to negotiate a sea which would prove difficult to smaller and more lightly-built machines.

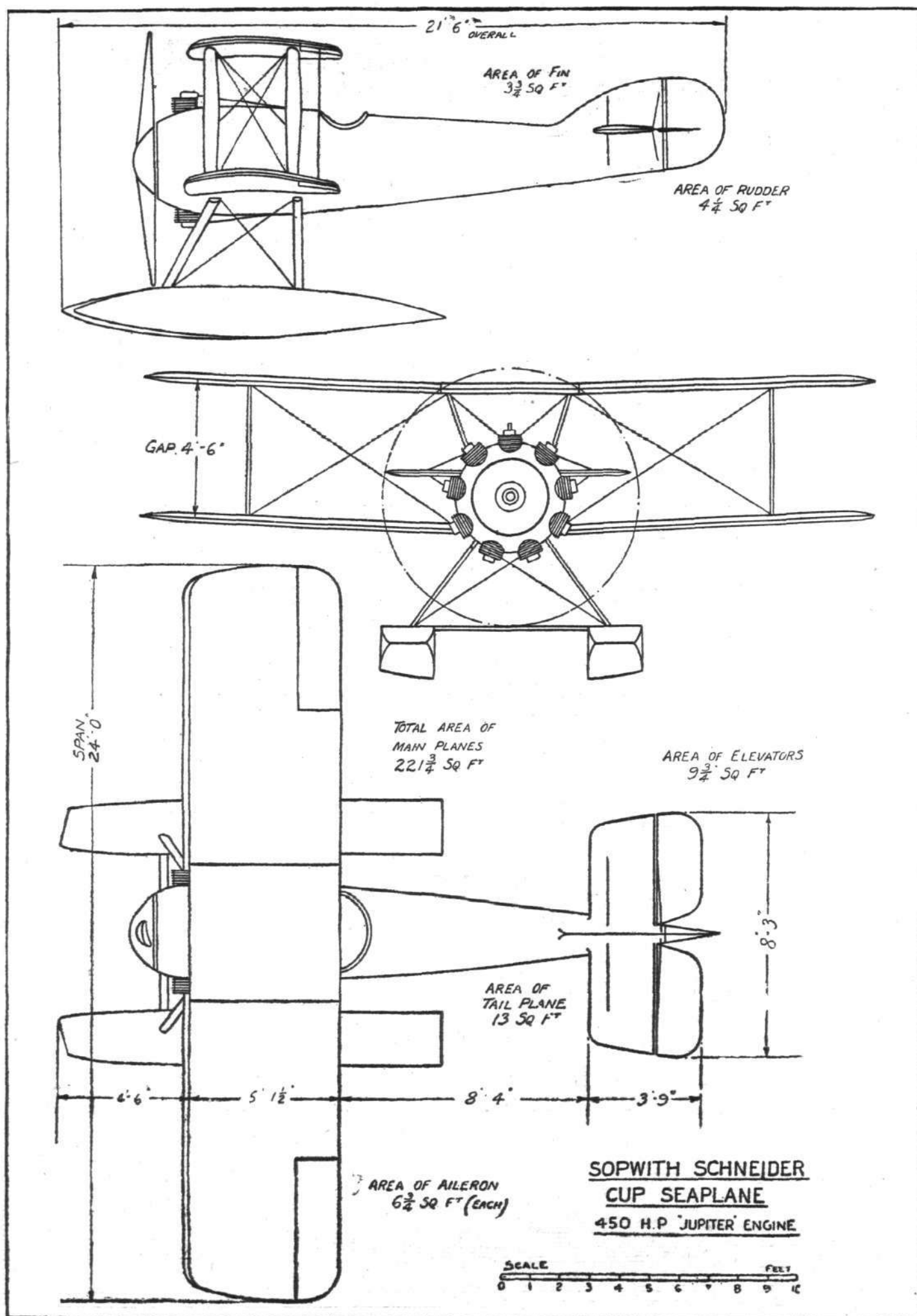
The Sopwith Seaplane

In our last issue we were able to publish a brief description and an illustration of the Sopwith machine, but we were not

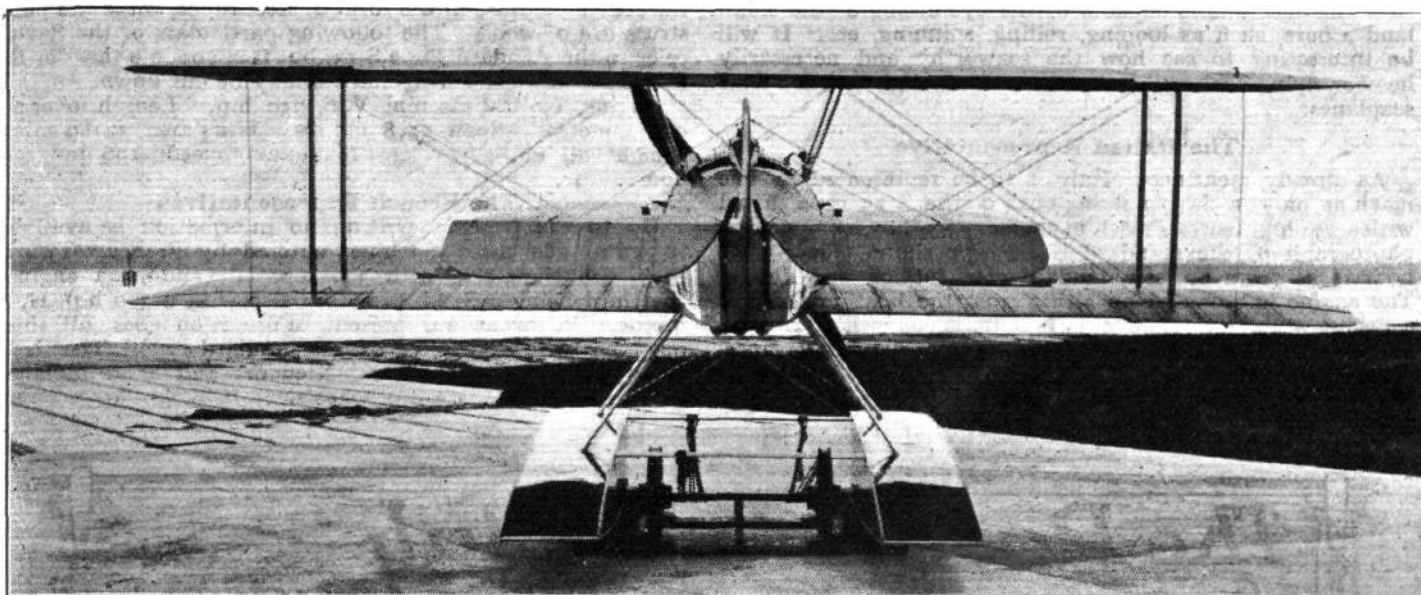
at liberty to give any particulars of dimensions, etc. This week, however, we are publishing complete scale drawings and photographs, from which can be formed an idea of the small size and general arrangement of the Sopwith Schneider Cup racer. The machine, which is fitted with a 450 h.p. Cosmos "Jupiter" engine, has been very carefully streamlined in order to cut down resistance. Thus, although constructionally not of the *monocoque* type, the body has the rounded shape which one usually associates with that form of construction. The *fuselage* is the usual wood girder-braced structure, but the circular shape of the engine cowl is carried gradually into the flat sides of the rear portion of the *fuselage* by the addition of longitudinal stringers. The front portion of the *fuselage* is covered with aluminium, the rear part with fabric.



THE SOPWITH SCHNEIDER SEAPLANE: Side view.



THE SOPWITH SCHNEIDER CUP SEAPLANE.—Plan, side and front elevations, to scale



THE SOPWITH SCHNEIDER SEAPLANE: Rear view. Note the thick bottom portion of the rudder, which serves as a tail float.

The 450 h.p. "Jupiter" engine is bolted to the flat nose of the fuselage, and is faired off with an aluminium cowl, through which the cylinder heads project. A "spinner" is fitted over the propeller-boss, and it will be noticed that each cylinder is faired off by additions to the engine cowl, taking the shape of a slice of a cone. The pilot's head is also faired off, and altogether everything has been done to cut down resistance to a minimum. The fuel tanks are carried inside the top and side fairings of the body.

The planes, which have a very slight backward stagger, are of short span, and have one pair of struts on each side, in addition to the usual centre section struts. Wing bracing is by streamline wires, and is of standard type. Ailerons are fitted to both upper and lower planes.

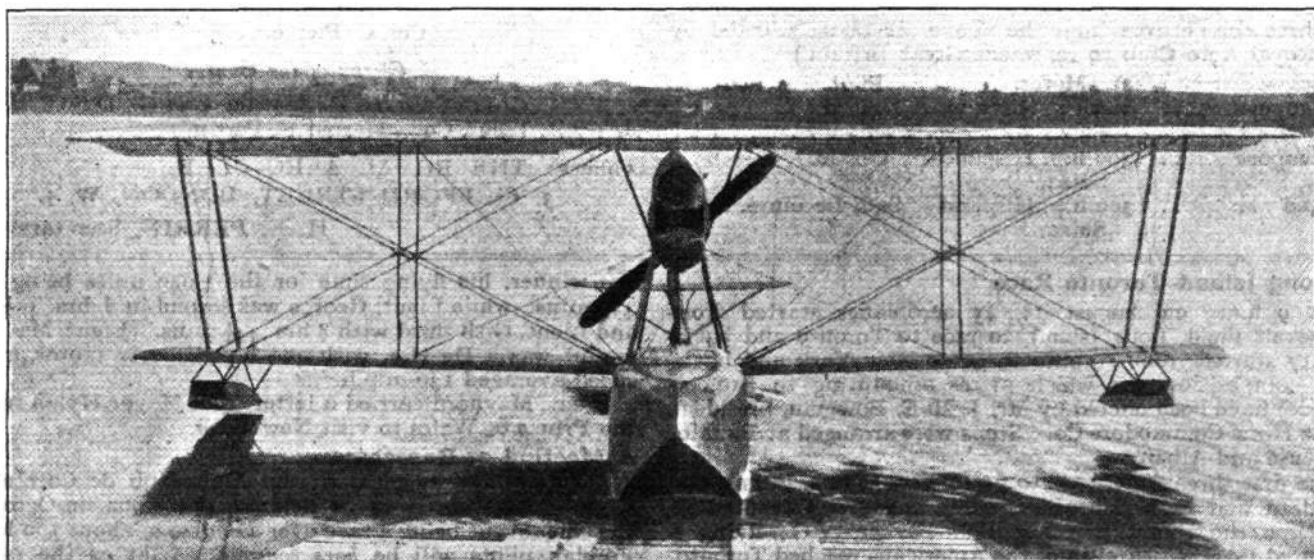
The tail planes are of the usual type, and do not call for any special comment; with the exception, perhaps, of the fin, which is somewhat unusual. The extreme front portion of the fin is built integral with the fuselage. The rest of the fin, although curving gradually into the top of the body, is a separate structure, bolted on after the tail plane is in place. The rudder is unusual, inasmuch as its lower portion is very thick, forming a continuation of the fuselage. The latter does not come to a sharp edge at the rear, but is some 6 or 8 ins. wide at the stern post. The leading edge of the rudder is made of the same width, and is covered with plywood. There is thus no external rudder crank lever, while the single pair of levers for the elevators is housed inside the fin. The whole gives a very neat impression, offering a minimum of resistance. The hollow lower portion of the rudder serves as a tail float.

The two floats are of the flat-bottomed type. That is to say, there is no Vee bottom, and no step in the ordinary sense of the word. It will be noticed, however, that the rear part of the float bottoms slopes upward in a straight line, and does not continue the curve of the front part. The latter is placed at a slight dihedral angle, as shown in the front elevation. The consequence is that the nose of the floats forms an angle with the transverse axis of the machine.

There can be no doubt that as regards speed, the Sopwith Schneider machine will be difficult to beat, fitted as it is with an engine of 450 h.p., and being very small. The weight, all on, is about 2,200 lbs., so that the wing loading will work out at something like 10 lbs./sq. ft. This will mean that the landing-speed will be fairly high, and if the day of the race should prove windy, with a rough sea, alighting might prove a matter of some difficulty. The loading is slightly less than 5 lbs./h.p., probably one of the lightest engine loadings ever attained in an aeroplane. A few years ago this was a fair average weight of the engine itself, and the Sopwith should be practically able to "helicopter."

The Supermarine Flying-boat

As it incorporates several new features, the flying-boat built by the Supermarine Aviation Co. is, up to the present, more or less of a "dark horse," and its makers do not wish any information published before the race. The machine is not, however, a freak built entirely for speed at any cost, and the makers are prepared to take it out in any sea that is likely to be encountered in that part of the world at this time of the year. It is a flying-boat more or less on the lines of previous Supermarine flying-boat scouts, and is fitted with



THE ITALIAN REPRESENTATIVE.—Front view of a "Savoia" flying boat, types 13, fitted with a 250-h.p. Isotta Fraschini engine.

a 450 h.p. Napier "Lion" engine. It is of interest to mention that this machine is capable of the evolutions of the small land scouts, such as looping, rolling, spinning, etc. It will be interesting to see how the seaworthy and necessarily heavier flying-boat will compare with the lighter-built float seaplanes.

The Italian Representative

As already mentioned, Italy is to be represented by one machine only, a Savoia flying-boat of the S 13 type, fitted with a 250 h.p. Isotta-Fraschini engine. As the accompanying photograph of the standard S 13 type shows, the Savoia boat is of more or less standard construction and design. The engine is mounted on struts from the boat, and drives a pusher air-screw. The wing bracing is somewhat unusual, being similar to that familiar from the French Spad biplanes. The bracing wires, instead of going to the ends of the first pair of struts, pass through the centres and on to the ends

of the outer struts. The intermediate struts are hinged in the centre, and are in the form of steel tubes, while the outer struts are of wood. The following particulars of the Savoia refer to the standard Type S 13, but it is possible that for the Schneider Race the wing surface may be cut down.

Engine, Isotta-Fraschini V 6, 250 h.p. Length, over all 9.022 metres. Span, 11.8 metres. Wing area, 32.89 sq. m. Weight all on, 1,350 kg. Maximum speed, 206 km. per hour.

The French Representatives

Up to the time of writing no information is available regarding the three machines entered by France. Two of them are Nieuports with 300 h.p. Hispano-Suiza engines, the third being a Spad, probably also with a 300 h.p. H.S. motor. So far as our present information goes, all three machines will be of more or less standard type. That is to say, they will be the usual Nieuport and Spad biplanes, fitted with floats instead of wheels.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

JACQUES SCHNEIDER INTERNATIONAL SEAPLANE RACE

This race will be held at Bournemouth on Wednesday, September 10, 1919, the machines representing France, Italy and Great Britain will compete. The course is 200 nautical miles, over a circuit of 20 miles (10 times round) in Bournemouth Bay. The start of the race will take place about 2.30 p.m.

The Royal Aero Club has obtained the loan of the T.S.Y. "Ombra" (350 tons) to accommodate the members on the day of the race. This yacht will be anchored off Bournemouth Pier, and will be the official starting and finishing point, the competitors passing 10 times during the race. Tickets, £2 each, including luncheon and tea on board.

Members are requested to make early application to the Club for tickets.

Motor launches will convey members from the Pier to the yacht between 12 noon and 2 p.m. on the day of the race.

Arrangements have also been made for a members' enclosure at the head of the Pier, Bournemouth, and tickets, admitting to the Pier and enclosure, may be obtained from the Club.

The following are the competitors:—

Great Britain—	Motor.	Pilot.
Sopwith ..	450 h.p. Cosmos "Jupiter."	H. G. Hawker.
Supermarine ..	450 h.p. Napier "Lion."	Sqdn.-Com. B. D. Hobbs, D.S.O., D.F.C.
Avro ..	Siddeley-Deasy "Puma."	Capt. Hamersley.
Fairey ..	450 h.p. Napier "Lion."	Lieut.-Col. Vincent Nicholl, D.S.O.

(Three competitors from the above are being selected by the Royal Aero Club to represent Great Britain.)

France—	Motor.	Pilot.
Nieuport ..	300 h.p. Hispano-Suiza.	Malard.
Nieuport ..	300 h.p. Hispano-Suiza.	Casale.
Spad ..	300 h.p. Hispano-Suiza.	Sadi Lecointe.

A Long Island-Toronto Race

At 9 a.m., on August 25, 45 aeroplanes started from Roosevelt Field, Long Island, to race to Toronto and back, and 17 started from Toronto to go to New York and back, in a competition, for which prizes amounting to \$10,000 (£2,000) have been offered by Mr. J. McE. Bowman, president of the Hotel Commodore Co. Stops were arranged at Buffalo, Syracuse and Albany.

The first three Americans to finish were Lieuts. Plumb and Maynard and Maj. Schroeder, while the first Canadian to complete the round trip was Col. Barker, V.C., flying a captured Fokker. Eleven of the Americans reached Toronto, and seven got back to New York. The bad weather accounted for the elimination of most of the machines.

Lieut. Maynard, of the American Air Service, was declared

Italy—

Savoia S. 13 .. 250 h.p. Isotta-Fraschini. Janello.

Officials on the Race

Stewards of the Meeting
(Commissaires Sportifs)

Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S. (Royal Aero Club.)

Mr. G. B. Cockburn (Royal Aero Club).
Lieut.-Col. Alec Ogilvie (Royal Aero Club).
M. Paul Rousseau (Aero Club de France).

Starters

Lieut.-Col. F. K. McClean.
Lieut.-Col. Spenser D. A. Grey, D.S.O.

Timekeepers

Mr. A. V. Ebbelwhite and Mr. A. G. Reynolds.

Press Steward

Lieut. B. Stevenson.

Mark Boat Observers

Mr. Howard T. Wright.
Lieut.-Col. H. T. Tizard.
Sqdn. Ldr. T. O'B. Hubbard, M.C., R.A.F.
Major R. H. Mayo.
Major R. E. Nicoll.

British Motor Boat Club Patrol

Mr. R. H. Cobb.
Mr. T. Desnos.
Mr. B. S. Millard.
Col. C. Pierce.

Clerks of the Course

Group Capt. C. R. Samson, C.M.G., D.S.O.
Lieut.-Com. Harold E. Perrin.

Offices: THE ROYAL AERO CLUB.

3, CLIFFORD STREET, LONDON, W. 1.

H. E. PERRIN, Secretary.

the winner, his flying time for the 1,040 miles being 7 hrs. 45½ mins., while Lieut. George was second in 8 hrs. 40½ mins. and Lieut. Gish third with 8 hrs. 44½ mins. Lieut. Maynard's mount was a De H.4, with 400 h.p. Liberty motor, and his speed averaged 136 m.p.h.

Lieut. Maynard carried a letter from Mayor Hylan inviting the Prince of Wales to visit New York.

A Meeting at Barcelona

UNDER the auspices of the Aero Club de Catalunya an aviation meeting is to be held at Barcelona on October 5, the chief event being a race over a course of about 100 kiloms. Foreign pilots will be hors concours as far as the race for Spanish planes steered by Spanish pilots is concerned, but if more than three foreign machines take part a special prize will be reserved for them.

STUNT FLYING AND THE COMMERCIAL PILOT

By Lieut. F. T. COURTNEY, late R.A.F.

The question of which type of pilot is likely to be most suitable for commercial work is one of the very greatest importance to the future development of commercial aviation. There are those who maintain that the "slow, steady" pilot is the type required for commercial flying, as, they say, stunting is not only unnecessary, but should be prohibited. There are others, who, like Lieut. Courtney, hold the opinion that although deliberate stunting will not be wanted, occasions are bound to arise when nothing but a manoeuvre approaching very closely to a stunt will save a crash. Both sides have, we think, a reasonably good case, and as the subject is of such extraordinary importance we would welcome a discussion on it in our columns. Lieut. Courtney has, we think, put the case for the side which he represents very ably, and it must be admitted that he is singularly qualified to speak from the stunt pilot's point of view, having had long experience of overseas service, test flying, and experimental flying. He is at home on a variety of machines, and is, we think, generally admitted to be able to handle an aeroplane of any type from the small scout to the large twin-engined machine with masterly skill.—Ed.

WHILST there are a number of people who are content to take the present risks of aviation for sporting or semi-sporting purposes, this is far from being true commercial aviation. Immense as has been the advance in matters of reliability in aeroplanes and their engines, there still remains a factor of uncertainty. Engines still fail in flight; they still fail near the ground, and so long as the resultant crashes are the fairly common occurrence they now are the ordinary man will refuse to trust the aeroplane as a business proposition. I think it will be admitted that this element of public doubt, immensely increased by every crash to a commercial aeroplane, is one of the greatest obstacles to the rapid development of commercial flying.

Clearly, therefore, it should be the first consideration of an aerial enterprise, whether of a pleasure or of a business nature, to take the greatest possible pains to avoid any form of crash to its machines. "Well, of course, that is the very first thing we always do," says the commercial firm. Is it?

It is going to be a considerable time before engines, either single or multiple, and their accessories reach the very high degree of reliability which is necessary. So that the only means left to avoid crashes is to employ the type of pilot who will, if it is humanly possible, be certain to bring safely through any difficulties, his machine or at least its occupants. Even should only one such emergency arise to a pilot in a year that principle is justified. And unquestionably that principle is not now universally in operation.

Some weeks ago the Prince of Wales went for a stunt flight with Col. Barker, V.C., and an evening paper published this fact with appended comments to the effect that the Prince ought to know better. "There were already enough deaths from commercial aviation without silly stunt flying receiving Royal approbation," or words to that effect. And an aeronautical paper reprinted this article with an approving headline.

Now it is a complete mystery to me that, even now, it fails to penetrate many minds, aeronautical and otherwise, that by far the greater number of serious crashes would never have taken place had the pilot had the skill, lightning judgement, presence of mind and nerve which stunting gives to a pilot who has intelligently learnt to stunt.

Stunting never was and never will be a public danger. The pilot who learns his stunting with due regard to its difficulties and to the practice required becomes an excellent and safe pilot. The pilot who stunts recklessly soon kills himself, (rarely anyone else) and ceases to affect this argument. That unpopular man who dives and "zooms" at people on the ground to "put the wind up them" is never a stunt pilot. If he were he could effect his object, without any danger to the people, by some real stunting, instead of by the simple, unskilled, fore-and-aft movement of the joystick.

I know some people will never be convinced that stunting, especially low-down stunting, can ever be a matter of very careful, if apparently reckless, flying. The stunting pilot rarely has any sympathy accorded him. Whilst generally enjoying the spectacular side of his flying, most people regard the pilot as an irresponsible fool, with more animal courage than imagination and sense, anxious to get sensation or applause at the risk of his neck; whilst the man who stunts low down, the abhorred of wing and squadron commanders, is generally considered the last word in objectionable idiocy.

Now, in the interests of the safety of flying, it is time these ideas were entirely reversed.

Allowing for certain rare exceptions, the real stunt pilot, perhaps unconsciously, follows certain rules of safety. He has ever in his mind certain possibilities of trouble, such as engine failure, and is ready to deal with them immediately. He is continually putting his machine in extraordinary positions and righting it again. He is discovering the behaviour of a machine in those extraordinary positions, which a pilot who does not stunt never discovers. He is carrying his

flying further towards perfection, which the non-stunter never does. Incidentally he is enormously improving his nerve.

How often has not the stunt pilot saved himself and his machine by some violent sideslip to shorten his distance, or by a vertical bank at a low height where the non-stunter does that fatal flat turn, or by some manoeuvre which he would not dare to attempt had he not done it many times before in the course of his "silly" stunting? How often has he not, promptly and easily, brought his machine out of some difficulty with which the non-stunter (generally, curiously enough, called a "safe" pilot) would be powerless to deal. The fact that he has done these stunts on his small machine makes little difference. Once a pilot masters the principles and details of stunting, he can apply them to a large machine to the fullest extent of its strength and manoeuvrability.

One of the greatest and most dangerous fallacies of commercial aviation is the idea that the scout-pilot is of little use for passenger carrying, which is supposed to be a work of the heavy machine pilot. The pilot who can really fly a small machine finds the large types child's play. The reverse is by no means the case, which proves that the scout pilot is the better flier. As illustrating my point, it is a fact that during the war a large number of bombing machine pilots were those turned down as unable to fly the lighter machines. If a man cannot fly, easily and well, a small light machine, there is something missing in his flying skill, and it is not good enough for public safety that he should be considered a commercial pilot.

In order to ensure that a pilot should be able to extricate his human cargo from any difficulties he must clearly be able to use to the very limit the manoeuvring powers of an aeroplane. He must be able to do this promptly, accurately, and almost unthinkingly.

If he cannot stunt it is clear that he cannot fulfil those requirements. Therefore, the passenger-carrying pilot should, when off duty, be expected to indulge in plenty of hard stunting. Considering that most crashes are due to engine failure low down, then the lower a pilot can manage to stunt the better will he be qualified to avoid crashes, and the more acrobatic are his stunts, the less difficulty will he find in more ordinary situations. Also, and that is where the commercial firm must avoid being economical at the public expense, this stunting involves a certain amount of personal risk and a very good quality of pilot, and the price must be paid.

A widespread idea, which is the exact reverse of the truth, is that the peace pilot requires less skill than the war pilot, and that there is a great surplus of pilots for commercial work. It is true that the peace pilot will have less occasion to use his skill than the war pilot, but his skill will have a higher proportional value. There was always a use for the moderate pilot in war, but for commerce he is not good enough, not for some time, at any rate. The skilled pilot requires, besides his skill, other qualities which go to form a combination which is none too common amongst the great number of war pilots. I do not even say that every stunt pilot is a suitable commercial pilot, but I do say that every commercial pilot should be able to stunt.

I know many first-class pilots refused commercial jobs. Knowing their skill, they ask for a respectable salary. I actually heard a prospective employer of pilots say: "But I have offers from pilots to fly for us for £250 a year; look at this letter." There it was, as usual; the good old heavy machine pilot, safe whilst his engines ran well and everything was all right, but dead certain for a bad crash the moment anything went seriously wrong.

For instance, one engine giving out anywhere near the ground, very heavy bumps in bad weather, or any forced landing on a heavy machine. He knew his value and asked for a low salary. Often when a first-class pilot asks for a reasonably-paid job he is told that the heavy machine pilot

is wanted. One of the best pilots I know of was refused a job because he had not flown twin-engine machines. This I consider absurd.

The whole argument boils down to this: that intelligent stunting, far from being idiotic, represents the perfecting of

a pilot's skill in handling an aeroplane; a pilot can be called first-class only when his flying is reasonably near to perfection; and only a first-class pilot is good enough for the safety of passengers and the consequent progress of commercial flying.

THE LONDON-PARIS SERVICES

In spite of tempestuous weather, the aeroplane service between London and Paris, organised by Messrs. Aircraft Transport & Travel, was maintained each day last week. On Saturday, from Paris, a relief machine had to be run, leaving 10 minutes after the scheduled machine, in order to cope with the demand. Each machine carried passengers and parcels—the latter including an urgent consignment of millinery from a Paris costumier to a leading West-end shop. Both "expresses" ran through to time, one landing at Hounslow at 3.10 p.m. and the other at 3.20 p.m. It was also necessary to fly two machines from Paris on Monday.

The first lady passenger was Lady Muriel Paget, who on August 27, flew from Paris to London on the Aircroft 4A.

MONDAY.—London 12.30, Paris 2.45; Paris 12.30, London 2.45. Wind in Channel; clouds, rain, haze.

TUESDAY.—London 1.15, Paris 3.30; Paris 1.30, London 3.20. Forty miles an hour wind in Channel; low clouds, rain.

WEDNESDAY.—London 12.43, Paris 3.10; Paris 12.30, London 3.20. Thirty-five to forty miles an hour wind; very gusty, clouds only 800 ft. high.

THURSDAY.—Paris 12.30, London 2.20. Hundred miles an hour hurricane in Channel; continuous heavy rain. The

passengers and goods on the 12.30 service London-Paris had to be diverted to an alternative route, because the wind at Hounslow was in gusts of terrific strength, with rain in torrents, and masses of cloud only 100 ft. from the ground.

FRIDAY.—London 12.30, Paris 3; Paris 12.30, London 3. Weather: Rain at times; low clouds.

SATURDAY.—London 12.30, Paris 3; Paris 12.30, London 3.10. Weather: Twenty miles an hour wind; clouds in patches.

It is hoped that before long arrangements between the British and French Post Office will be concluded to permit the carriage of express letters by air. The fee will probably be 2s. 6d., this would include the Post Office charges for express collection and delivery by motor-cycle and special messenger. By the speeding up of land connections it is expected that a letter posted, say, in London during the morning will reach its recipient in Paris during the early afternoon.

On Tuesday last the Handley Page Transport Co. commenced their service, the machine leaving Hounslow at noon, being piloted by Lieut.-Col. Douglas, M.C., D.F.C., and carrying 7 passengers and 300 lbs. of freight. This service leaves London on Tuesdays, Thursdays and Saturdays, and Paris on Mondays, Wednesdays and Fridays.

The Government and Airships

THE Air Ministry announces that in view of the decision of the Government to curtail their airship programme, it has been decided to place certain airships, airship stations, stores, etc., on terms to be agreed, at the disposal of interested parties, with a view to the commercial development of this type of aircraft.

It is proposed as an initial step to hold a conference in connection with this matter on September 8, at 3 p.m., in the Lower Hall, Australia House, at which the Under-Secretary of State for Air will preside.

Bona-fide applications from individuals or firms should be made to the Air Ministry (C.G.C.A.) for permits to be present.

New R.A.F. Titles Brought into Use

It is notified by the Air Ministry that an Order has been promulgated directing that the new titles for officers of the Royal Air Force are to be brought into use in the Force forthwith.

The new titles, which were published on August 4 last, apply to all officers of the R.A.F., whether permanent or temporary, attached to or seconded for service with the R.A.F.

Relinquishment of R.A.F. Stations

It is announced by the Air Ministry that the following Royal Air Force stations are to be relinquished:—

- Fishguard (seaplane station).
- Tresco, Scilly Isles (seaplane station).
- Lincoln, West Common (aerodrome).
- Aldeburgh, Suffolk (aerodrome).
- Elmswell, Suffolk (aerodrome).

It is also announced that the Royal Air Force landing ground at South Denes (Yarmouth) has been relinquished.

Royal Air Force Decorations

THE Air Ministry makes the following announcement:—

His Majesty the King has been graciously pleased to approve the ribbons, as described below, being substituted for those at present in use:—

Distinguished Flying Cross.—One inch and a quarter in width; violet and white alternate diagonal stripes, each of one-eighth of an inch in width, running at an angle of 45°.

Air Force Cross.—One inch and a quarter in width; red and white alternate diagonal stripes, each of one-eighth of an inch in width, running at an angle of 45°.

Distinguished Flying Medal.—The same as that for the D.F.C. except that the diagonal stripes are one-sixteenth of an inch in width.

Air Force Medal.—The same as that for the A.F.C. except that the diagonal stripes are one-sixteenth of an inch in width.

The ribbons will be worn one half-inch in depth, the diagonal

stripes running downwards from the centre of the tunic towards the left, and will be so arranged that:—

(1) Distinguished Flying Cross or Air Cross Ribbon will show at the top corner nearest to the left arm, and at the bottom corner nearest to the centre of the tunic, triangles of equal dimensions of violet or red, as the case may be.

(2) Distinguished Flying Medal and the Air Force Medal ribbon will show at the top corner nearest to the left arm a triangle of white and at the bottom corner nearest to the centre of the tunic a triangle of equal dimensions of violet or red, as the case may be.

(3) The order of precedence will be the same as at present.

The new ribbons should be worn as soon as practicable by all officers and airmen awarded these decorations. The ribbons are now available, and a free issue will be made to those awarded these decorations.

In the case of demobilised officers and airmen, application for the ribbon should be made to:—

(1) Officers—The Secretary, Air Ministry, Kingsway, W.C. 2.

(2) Airmen—The Officer i/c Records, Royal Air Force, Blandford, Dorset.

Over the North Sea in a Gale

ON the afternoon of August 28 the F 5 (Porte) flying boat, fitted with two 350 h.p. Rolls-Royce engines, which, by permission of the Air Ministry has been exhibited by the Gosport Aircraft Co. at Amsterdam, flew back to England in the gale, which did so much damage in the Channel and North Sea. Lieut.-Col. R. Hope-Vere, A.F.C., was the pilot and there were four other persons on board, including Mr. M. H. Volk, General Manager of the Gosport Aircraft Co.; in addition, about 400 lbs. of luggage was carried. The journey occupied just under three hours.

An indication of the weather conditions is the fact that, although the air speed was 72 knots, the machine, when turned into the wind, was nearly brought up standing and, further, the boat had to be steered an average of 35 points south of the true course.

A perfect landing was made at Felixstowe, but the sea was so rough that it was necessary to cruise around for an hour and-a-half before a motor boat could get alongside to take the party off.

To Fly to Tokyo

THE Italian poet-aviator, Gabriele d'Annunzio, is making arrangements to fly from Paris to Tokyo on a S.V.A. biplane. He will be accompanied by the Italian pilots Ancilotto, Locatelli, Ferrarin and Bilisco.

The steamship *Nippon* left Italy last week for Tokyo, carrying spare parts of aeroplanes and aeronautical instruments, which will be unloaded at various points on the route to be followed. The ports of call include Salonika and Baghdad.

AERODROMES FOR CIVIL USE

THE following lists of aerodromes open to civil aviation are issued as an addition to the lists recently published. It will be seen that in the majority of cases the aerodromes referred to below can only be considered as possible emergency landing grounds. Attention is again drawn to the fact that these lists are purely provisional and subject to alteration or amendment from time to time :—

List C (2).—Stations temporarily retained for Service Purposes.

It should be assumed that no facilities normally exist at these stations for dealing with civil aircraft. The aerodromes, however, may be considered as emergency landing grounds.

Aerodrome.	Nearest railway station and distance in miles.	Nearest town and distance in miles.
Beverley	.. Beverley (1), N.E.R.	.. Beverley (1)
Boscombe Down	.. Amesbury (1½), L.S.W.R.	.. Salisbury (8)
Brooklands	.. Weybridge (2), L.S.W.R.	.. Weybridge (2)
Catfirth (s)	.. Thurso, in Scotland, by boat	.. Lerwick (9), Shetland Isles
Chattis Hill	.. Stockbridge (2), L.S.W.R.	.. Stockbridge (2)
Collinstown	.. Portmarnock (5), G.N.R.I.	.. Dublin (6)
Coventry..	.. Coventry (2), L.N.W.R.	.. Coventry (1)
Crail ..	.. Crail (½), N.R.R.	.. Crail (½)
Cramlington	.. Cramlington (1), N.E.R.	.. Newcastle-on-Tyne (7)
Doncaster	.. Doncaster (1), G.N.R.	.. Doncaster (1)
Driffield ..	.. Driffield (2), G.N.R. and G.E.R.	.. Driffield (2)
Easton-on-the-Hill	.. Stamford (3), M.R. and G.N.R.	.. Peterborough (12)
East Retford	.. East Retford (3), G.N.R.	.. Gainsborough (10)
Feltwell ..	.. Lakenheath (1½), G.E.R.	.. Brandon (5½)
Gormanston	.. Gormanston (1), G.N.R.I.	.. Drogheda (6)
Gullane ..	.. Gullane (1), N.B.R.	.. North Berwick (4)
Harling Road	.. Harling Road (½), G.E.R.	.. Thetford (6)
Harpwell	.. Kirton Lindsey (5), G.C.R.	.. Gainsborough (8)
Helperby	.. Bafferton (1), N.E.R.	.. Ripon (8)
Hooton Park	.. Hooton (2½), L.N.W.R. and G.W.R.	.. Chester (8)
Killingholme (S)	.. Habrough (6), G.C.R. (sid-ing on site)	.. Grimsby (9)
Lake Down	.. Amesbury (5), L.S.W.R.	.. Salisbury (7)
Leigherton	.. Tetbury (6), G.W.R.	.. Stroud (10)
Lincoln ..	.. Lincoln (1), G.N.R. and G.E.R.	.. Lincoln (1)
London Colney	.. Radlett (2), M.R.	.. St. Albans (4)
Lopcombe Corner	.. Grateley (4), L.S.W.R.	.. Salisbury (9)
Minchinhampton	.. Chalford (1), G.W.R.	.. Stroud (6)
Narborough	.. Narborough (2½), G.E.R.	.. Swaffham (5)
Newhaven (s)	.. Bishopstone (½), L.B.S.C.R.	.. Newhaven (2)
Northolt	.. Northolt Junction (½), G.W.R. and G.C.R.	.. Uxbridge (1)
Norwich ..	.. Norwich Thorpe (1), G.E.R.	.. Norwich (2)
Penston ..	.. Macmeray (1), N.B.R.	.. Haddington (5)
Port Meadow, Oxford	.. Oxford (2), G.W.R.	.. Oxford (1)
Rendcombe	.. Foss Cross (2½), M.R. and L.S.W.R.	.. Cirencester (6)
Rochford	.. Rochford (1), G.E.R.	.. Southend (5)
Seaton Carew	.. Seaton Carew (1), N.E.R.	.. West Hartlepool (6)
Sedgeford	.. Sedgeford (1), G.E.R.	.. Hunstanton (5)
Shawbury	.. Hadnall (3), L.N.W.R.	.. Shrewsbury (10)
Shoreham	.. Shoreham (1), L.B.S.C.R.	.. Shoreham-by-Sea (1)
Shrewsbury	.. Shrewsbury (1½), G.W.R.	.. Shrewsbury (1)
Tadcaster	.. Thorrer (2), N.E.R.	.. Tadcaster (4)
Ternhill ..	.. Ternhill (2), G.W.R.	.. Market Drayton (5)
Thetford	.. Thetford (2), G.E.R.	.. Thetford (2)
Throwley	.. Charing (4), S.E.C.R.	.. Faversham (6)
Upper Heyford	.. Lower Heyford (2), G.W.R.	.. Bicester (6)
Waddington	.. Waddington (1½), G.N.R.	.. Lincoln (5)

Westgate (s)	.. Westgate (½), S.E.C.R.	.. Westgate-on-Sea (½)
Whitley Abbey	.. Coventry (2), L.N.W.R.	.. Coventry (2)
Witney ..	.. Witney (2), G.W.R.	.. Oxford (12)
Wittering	.. Stamford (3), G.N.R. and M.R.	.. Peterborough (10)
Yatesbury	.. Calne (5), G.W.R.	.. Marlborough (9)

List D (a) Aerodromes licensed for all but larger types of Aircraft.

Aerodrome.	Nearest railway station.	Nearest town.
Yeovil ..	.. Yeovil (1½), G.W.R., L.S.W.R.	.. Yeovil (½), Somerset

List D (b).—Aerodromes Licensed as suitable for "Avro 504 K. and similar Types of Aircraft" only, except in a very few instances accommodation does not exist. The Licenses have also been issued for limited periods only.

Aerodrome.	Nearest railway station.	Nearest town.
Aberystwyth	.. Aberystwyth (½), G.W.R.	.. Aberystwyth (½), Cardigan
Chesterfield	.. Chesterfield (2), M.R.	.. Chesterfield (2), Derby
Conway ..	.. Conway (1), L.N.W.R.	.. Conway (1), Carnarvon
Derby ..	.. Normanton (1½), M.R.	.. Derby
Herne Bay	.. Herne Bay (1), S.E.C.R.	.. Herne Bay (½), Kent
Nottingham	.. Nottingham (2), M.R., G.N.R., G.C.R.	.. Nottingham

Situated on Sands not available at high Tide.

Hunstanton	.. Hunstanton (½), G.E.R.	.. Hunstanton (½), Norfolk
Llanelly ..	.. Llanelly (1), G.W.R.	.. Llanelly (½), Carmarthen
Ramsey, I.O.M.	.. Ramsey (½), I.O.M.	.. Ramsey (½), I.O.M.
Rothsay, Etherick Bay	.. By boat to mainland	.. Rothsay (4), Isle of Bute
Southport	.. Southport (1), L.Y.R.	.. Southport (½), Lancs.
Swansea ..	.. Swansea (1), G.W.R.	.. Swansea (½), Glamorgan
Weston-super-Mare	.. Weston-super-Mare (½), G.W.R.	.. Weston-super-Mare (½), Somerset

List E.—Stations no longer in use by the R.A.F.

These stations have been passed to the Government Surplus Property Disposal Board. They will be relinquished as soon as the Government property thereon has been disposed of. In many cases the aerodromes are now under cultivation, but it is probable that the sites still form the best emergency landing grounds in the immediate neighbourhood.

Aerodrome.	Nearest railway station and distance in miles.	Nearest town and distance in miles.
Aldeburgh	.. Aldeburgh (2), G.E.R.	.. Aldeburgh (2)
Ashington	.. Longhirst (1), N.E.R.	.. Morpeth (5)
Athlone ..	.. Athlone (2), M.G.W.R.	.. Athlone (2)
Atwick ..	.. Hornsea (3), G.N.R.	.. Driffield (1)
Ayr ..	.. Ayr (1), G. & S.W.R.	.. Ayr (1)
Bacton (c)	.. North Walsham (4), G.E.R.	.. Norwich
Beaulieu	.. Brockenhurst (6), L.S.W.R.	.. Southampton (10)
Bekesbourne	.. Bekesbourne (1), S.E.C.R.	.. Canterbury (4)
Bembridge	.. Bembridge (½), I. of W. Rly.	.. Ryde (6)
Bembridge (s)	.. Bembridge (½), I. of W. Rly.	.. Ryde (6)
Burgh Castle	.. Great Yarmouth (2), G.E.R.	.. Great Yarmouth (2)
Butley ..	.. Belton (3), G.E.R.	.. Woodbridge (5)
Catterick..	.. Catterick Bridge (1½), N.E.R.	.. Richmond (6)
Chickewell	.. Weymouth (1), G.W.R. and L.S.W.R.	.. Weymouth (1)
Chingford	.. Ponders End (½), G.E.R.	.. Chingford (2)
Copmanthorpe	.. Copmanthorpe (½), N.E.R. and G.N.R.	.. York (5)
Covehithe (c)	.. Southwold (5), G.E.R.	.. Southwold (5)
Edzell ..	.. Edzell (2), Cal. Rly.	.. Montrose (9)

Elmswell	.. Elmswell (2), G.E.R.	.. Bury St. Edmunds (10)	Peterhead (s)	.. Peterhead (1), G.N. of S. Rly.	Peterhead (1)
Elsham	.. Elsham (3), G.C.R.	.. Barton-on-Humber (6)	Portholme	.. Huntingdon (1), G.N.R.	Huntingdon (1)
Fairlop	.. Fairlop (1), G.E.R.	.. Romford (4), Essex	Prawle Point	.. Kingsbridge (7), G.W.R.	Plymouth (22)
Goldhanger	.. Maldon (3), G.E.R.	.. Maldon (3)	Redcar	.. Redcar (1½), N.E.R.	Middlesbrough (6)
Goring-by-Sea (c)	.. Goring-by-Sea (½), L.B.S.C.R.	.. Worthing (2)	Ripon Racecourse	.. Ripon (2), G.N.R.	Ripon (2)
Greenland Top	.. Stallingborough (1½), G.N.R.	.. Grimsby (7)	Rustington	.. Angmering (1), L.B. & S.C.R.	Littlehampton (2)
Hadleigh	.. Ipswich (9), G.E.R.	.. Ipswich (9)	Scale Hall	.. Lancaster (1), L.N.W.R.	Lancaster (1)
Hainault Farm	.. Goodmayes (1½), G.E.R.	.. London (8)	Seahouses	.. North Sunderland (1), N.E.R.	Alnwick (12)
Hamble (s)	.. Netley (3), L.S.W.R.	.. Southampton (5)	Southbourne	.. Southbourne Halt (½), Emsworth (2), L.B. & S.C.R.	Chichester (6)
Holt	.. Holt (4), M. & G.N.J.R.	.. Norwich (11)	Stenness (s)	.. To Thurso by boat	Kirkwall (10), Orkney Islands
Joyce Green	.. Dartford (2), S.E.C.R.	.. Dartford (2)	Stow Maries	.. Cold Norton (2), G.E.R.	Maldon (5)
Kirton Lindsey	.. Kirton Lindsey (1½), G.C.R.	.. Gainsborough (12)	Strathbeg (s)	.. Lomax (6), G.N. & S.R.	Peterhead (8)
Leadenham	.. Leadenham (1), G.W.R.	.. Grantham (12)	Tydd St. Mary (c)	.. Tydd (2) M.R. & G.W.R.	Long Sutton (3)
Lilbourne	.. Cliftonmill (1½), L.N.W.R.	.. Rugby (3)	Tynemouth	.. Tynemouth (1), N.E.R.	Newcastle-on-Tyne (8)
Machrihanish (c)	.. Campbeltown (2), on Campbeltown and Machrihanish Light Rly. from Campbeltown by steamer	.. Campbeltown (2)	Turnberry	.. Turnberry (½), G.S.W.R.	Ayr (14)
Manywell Heights	.. Bradford (5), G.N.R.	.. Bradford (5)	Upwood (Bury)	.. Ramsey (2), G.E.R. and G.N.R.	Wyton (6)
Marden	.. Marden (1), S.E.C.R.	.. Tonbridge (6)	Usworth	.. East Bolton (1), N.E.R.	Sunderland (6)
Mattishall (c)	.. East Dereham (5), G.E.R.	.. East Dereham (5)	Walmer	.. Walmer (1½), S.E.C.R.	Walmer (½)
New Haggerston (c)	.. New Haggerston (2½), N.E.R.	.. Berwick-on-Tweed (7)	West Ayton	.. Forge Valley (½), N.E.R.	Scarborough (5)
New Holland	.. New Holland (½), G.N.R. and G.C.R.	.. New Holland (½)	Westward Ho !	.. Northam via Bideford (1), L.S.W.R.	Westward Ho (1)
Newmarket	.. Newmarket (1), G.E.R.	.. Newmarket (1)	Whiteburn	.. Grants House (4), N.B.R.	Duns (8)
Newlyn (s)	.. Penzance (2), G.W.R.	.. Penzance (2)	Wye	.. Wye (1), S.E.C.R.	Ashford (4)
Omagh	.. Omagh (2), G.N.R.I.	.. Omagh (2)	Wyton	.. Huntingdon (5), G.N.R.	Huntingdon (5)
Owthorne	.. Withernsea (½), G.W.R.	.. Hull (16)			
Padstow (c)	.. Padstow (2), G.W.R.	.. Bodmin (12)			
Penshurst	.. Penshurst (1), S.E.C.R.	.. Tunbridge Wells			

REFERENCES.—(s) = Seaplane station. (c) = Known to be under cultivation or otherwise unsuitable for landing.

Aircraft Work in Russia

IN the attack on Yemtsa on August 29, aircraft co-operated dropping bombs on barracks in the village and on armoured trains. On the following day our aeroplanes bombed Plesetskaya heavily.

An American Squadron to Assist Poles

IN their fight against the Bolsheviks, the Polish Army should find welcome aid from the squadron of American aviators which is being formed in Paris. It is stated that Maj. Fauntleroy and Capt. Cooper have received official authorisation from Gen. Rosvedowski, head of the Polish Military Mission, to organise the squadron which it is proposed to call the Kosciusko Squadron, after the Polish national hero, and is expected to leave for Poland about September 15.

The Air Raid on Kabul

SOME details of the aeroplane raid on Kabul a few months ago have now been published. It appears that the raid was carried out by Capt. Halley in the Handley-Page machine in which Gen. McEwen flew to India last January, and Lieut. Villiers was the observer. Having flown from Risalpur, about 400 miles away, passing over Jellalabad, the machine flew straight across to Kabul, going up to 8,000 ft. to cross one ridge, and reaching Kabul early in the morning. It was over the city for ten minutes, the whole flight lasting six hours.

Air Attacks on Raisuli

A SPANISH airman bombed the fondak of Wadi Ras on August 23, and again on August 24, says *The Times* correspondent at Tangier. He adds that on August 23 two of Raisuli's regular soldiers were killed, but the tribesmen report that on the next day they had time to take to the dug-outs constructed some time ago at Raisuli's orders, and there were no casualties. They report that five bombs were dropped on the first day and 11 on the second. The tribesmen describe the aeroplane as armoured, and they state that they were unable to shoot it down, although it was flying at a low elevation. They are undoubtedly impressed by this new type of machine.

Civil Aviation in France

FROM information received by the *Petit Parisien*, it appears that a vast system of aeroplane routes is soon to be opened up which will cover the whole of France.

Shortly a French company will start a service competing with the English companies between Paris and London, and assuring a daily aeroplane service. A service between Paris and Lille is already established, and one between Bordeaux and Nice is to be started before long. Several firms are experimenting with a view to producing a machine specially suitable for touring purposes.

Aviation, adds the *Petit Parisien*, is to play a principal rôle, especially in the colonies. Several of them will possess a regular aeroplane service. The first system will be established in Morocco. A project is being considered for establishing aeroplane communication between the auriferous regions of French Guiana and the coast.

International Air Traffic

AN International Conference of Aerial Traffic Companies has been held at The Hague, states the *Morning Post* correspondent at Amsterdam, at which it was decided to institute a combination of interests under the title of "The International Air Traffic Association."

A Franco-Spanish Service

A FRENCH aviation company of Toulouse has been authorised to begin an air service over Spanish territory from Portbou, on the Franco-Spanish frontier, to Cadiz, with compulsory stops at Barcelona and Malaga and facilities for establishing other intermediate aerodromes.

A Handley-Page Service in Brazil

WITH characteristic enterprise the Handley-Page company has secured the first complete aerial concession from the Brazilian Government. We understand the concession is to carry mails and passengers between Buenos Aires and Pernambuco (2,725 miles), and the intervening towns. The final plans are now nearing completion, and it is hoped to begin the service very soon.

At first flying will be by day only, and the trip will take four days. It is hoped later to run a night service as well as a day one.

An Italian Aeroplane for Holland

THE Director-General of the Italian Aviation Department has presented to the Dutch Military Aviation Service an aeroplane of wholly Italian construction as a token of the sympathy and cordial relations existing between Italy and Holland. The Dutch Government has accepted the gift with thanks.

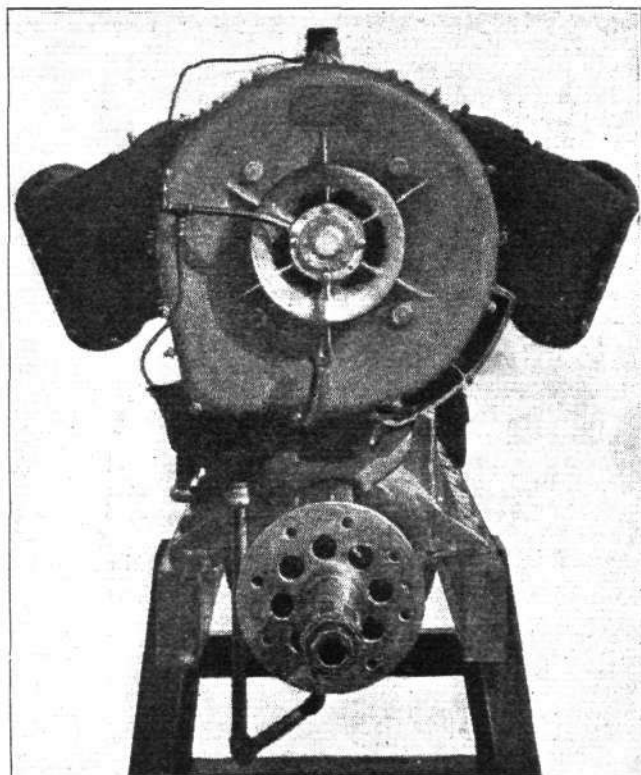
MAINTAINING CONSTANT PRESSURE BEFORE THE CARBURETTORS OF AERO ENGINES REGARDLESS OF THE ALTITUDE

By **LESLIE V. SPENCER, M.E.** (formerly Editor of Technical Publications, Experimental Department, Aeroplane Engineering Division, Bureau of Aircraft Production at the McCook Field, Dayton)

(Concluded from page 1090)

The Moss Turbo-Supercharger

It has previously been brought out that the Sherbondy and Moss turbo-superchargers have few mechanical details in common, although both designs adhere to the same principles of operation. This is to be expected, in that both engineers worked entirely independently of one another. Therefore, neither device has a monopoly of all the good features; each has certain advantages that the other lacks, and in the final analysis it might be said that both are about on an equal footing as regards efficiency, when everything is taken into account.

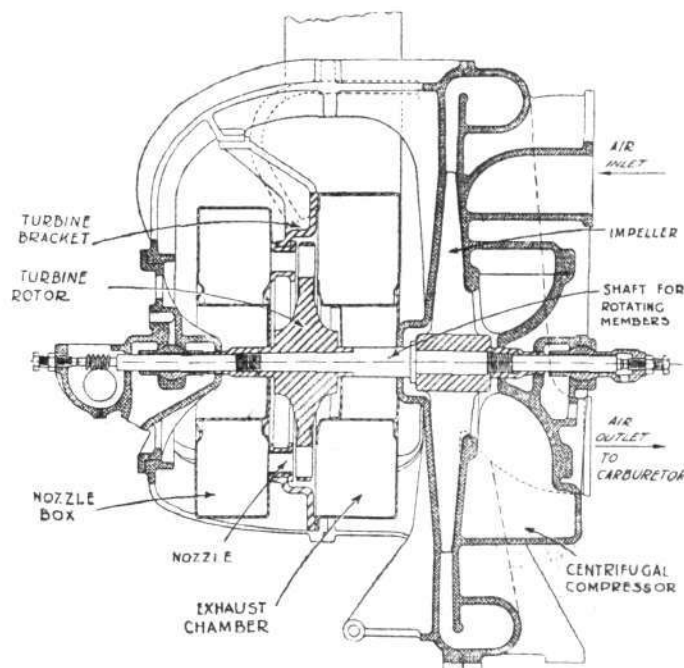


The supercharger developed by Dr. Moss of the General Electric Co.

Dr. Moss, in his development work, had back of him his experience and that of the General Electric Co., Lynn, Mass., with which he is connected, whereas Mr. Sherbondy performed his work independently. He was, however, assisted by the Fergus Motors of America, Newark, N.J., which concern did much of the accurate construction work under his direction, and by the De Laval Steam Turbine Co., Trenton, N.J., where preliminary steam tests of the Sherbondy outfit were made prior to any operative trials on the Liberty engine. On the other hand, all Moss experimental work was carried on by the General Electric, including steam testing.

Like Mr. Sherbondy, Dr. Moss was specially fitted to conduct experimental and research work on exhaust gas turbines and direct-connected air compressors through wide experience with gas turbines in general. The General Electric Co. has carried on experimentation for a number of years under Dr. Moss's direction along this line, but the difficult nature of the gas turbine problem is brought out forcibly by the fact that to date this concern has not been able to perfect its turbine and compressor units to the point where it cares to put them on the

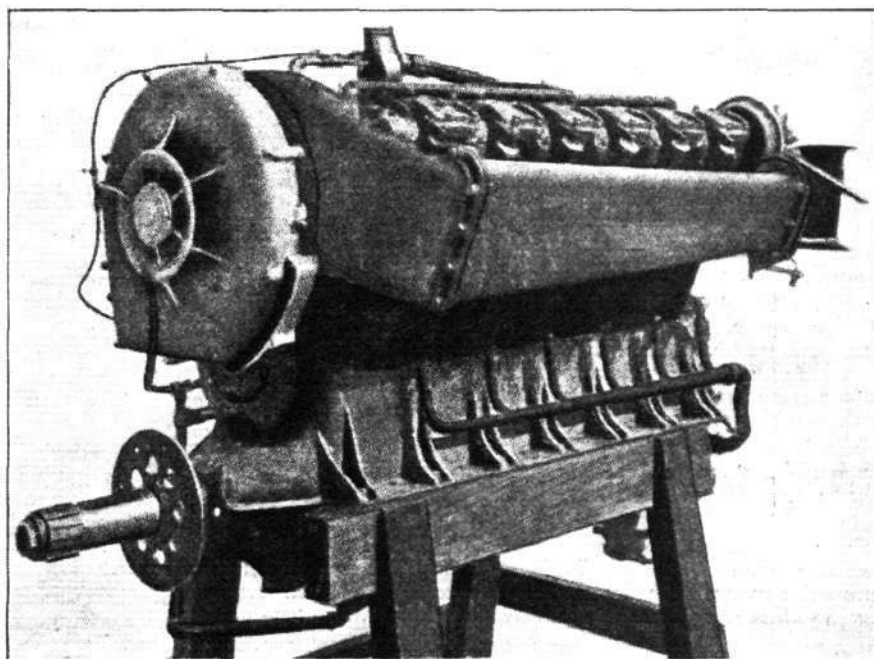
market as a commercial proposition. It will be appreciated, therefore, that Dr. Moss was not striking out blindly along a new engineering path in designing a small turbo-compressor unit, but the new part was the producing of such a unit for the highly special service which it is called upon to perform



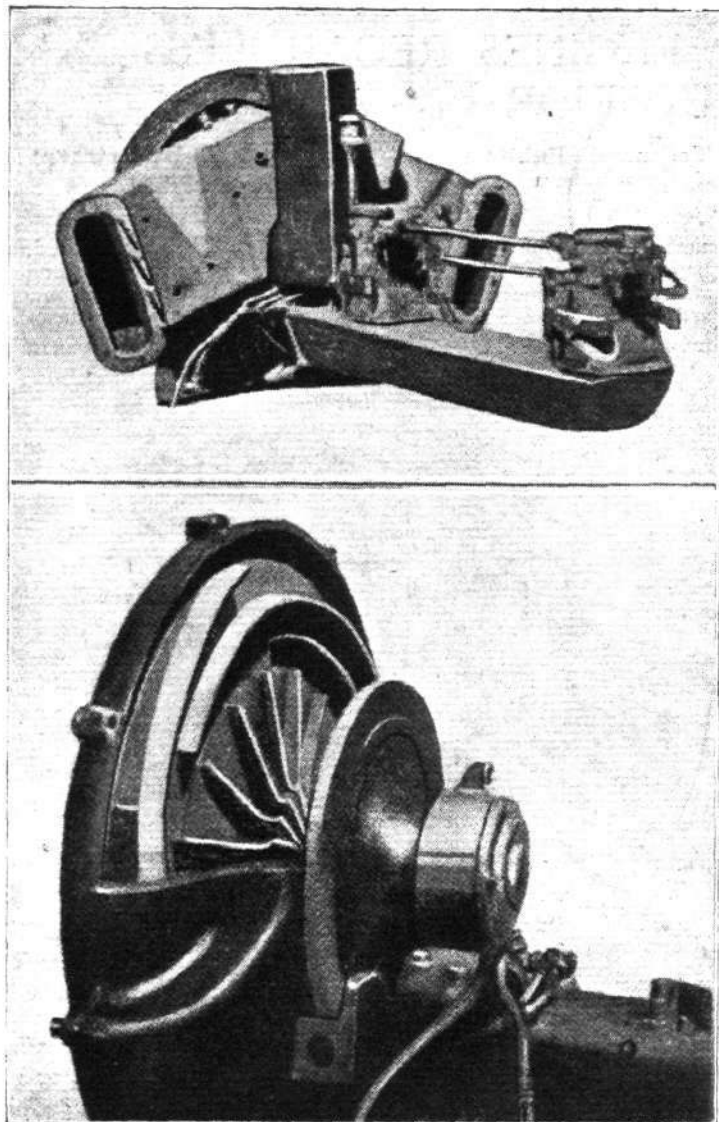
Cross-section of an exhaust turbine-driven supercharger designed by Prof. Rateau in France

in an aviation engine in connection with the Rateau system of supercharging.

As the illustrations show, the Moss turbo-supercharger incorporates the turbine rotor and the centrifugal compressor air impeller on the same shaft, and is arranged so as to leave the Liberty engine carburetors in the centre of the V, connected to the air discharge of the compressor by an induction pipe of generous proportions which is rectangular in section. The engine exhausts are on the outside, and the



The Moss supercharger installed on a Liberty Twelve



The Moss supercharger : Above is shown the nozzle box and induction system, and below the turbine wheel and water-cooled rear bearing

gases are sent to the nozzle box of the turbine by means of substantial specially-designed exhaust headers which connect at their front ends to the flanges on either side of the nozzle box.

The very large size of the exhaust headers and the nozzle box is evident from the illustrations. By this design the exhaust gases are offered an unrestricted passage in as direct a path as possible to the turbine buckets, so that the discharged gases from the engine should possess a large percentage of their outlet energy on reaching the point of expansion. This free passage feature should also have an effect upon the cooling of the device.

Unlike the Sherbondy machine, which has a circular nozzle plate, with nozzles all around the turbine wheel, the Moss nozzles are arranged in a semi-circular plate set into the front side of the nozzle box, as shown in the illustration. This should be a factor in keeping down the temperature of the rotor, since the intense exhaust gas heat is not being directed to the entire rotor all the time, but to only about one-half of its circumference.

In further comparison between this machine and the Sherbondy final design, it is also to be noted that due to the turbine and compressor being practically separate so far as their housings are concerned, the Moss device is of greater fore and aft width than the Sherbondy. This was no doubt partially due to a desire to permit as much air circulation between the two parts as possible for cooling reasons. The construction has the disadvantage, however, that the machine cannot be installed on the Liberty engine with the propeller in its normal position. To accommodate the depth of the Moss machine there has to be a special propeller flange and hub construction in order to bring the screw forward a small distance. In building his machine this way, it is evident that the designer considered the advantage of greater cooling sufficient to outweigh any disadvantage due to the

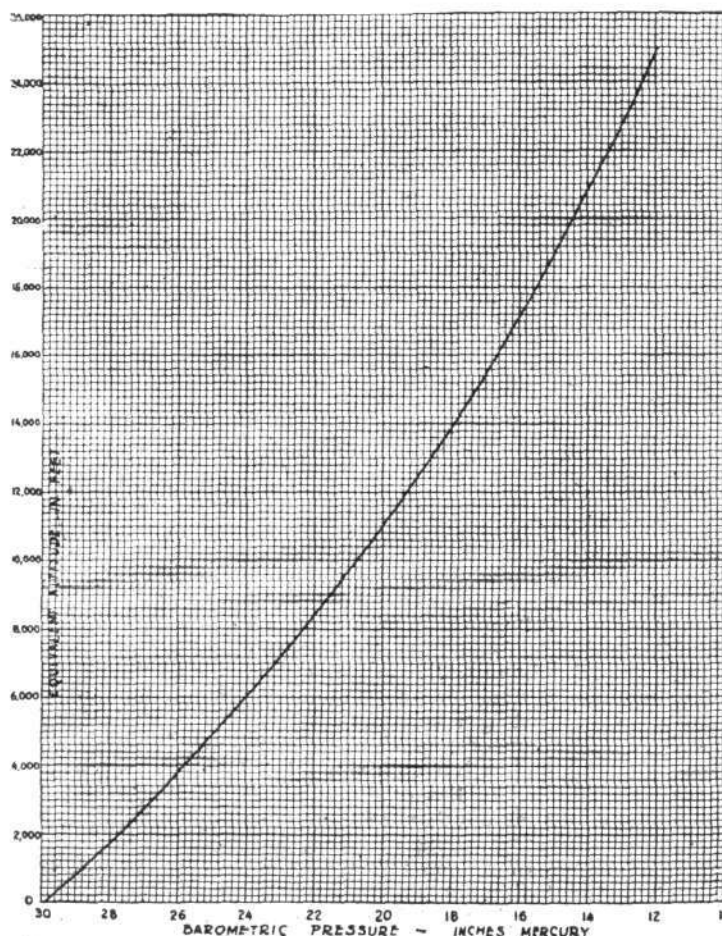
necessity for alternating the propeller position to make room.

Instead of the air being drawn into the compressor through an opening in the front centre, as with the Sherbondy machine, the Moss air intake is an integrally cast mouth that leads from the side of the housing to the compressor centre at the rear and just ahead of the turbine, where the air is caught up by the blades of the impeller. This part is therefore in the reversed position from that of the Sherbondy impellers, the entrance side of the blades being toward the rear instead of to the front.

A feature of the Moss machine is the water-cooled rear bearing which shows clearly in one of the illustrations. This is nothing more or less than a special water jacket that surrounds the bearing proper, and through which water is circulated from the regular water circulation system of the engine. The machine also is provided with self-aligning bearings to take care of any slight inaccuracy of the position of the rotative parts due to the high speeds and high temperatures encountered in operation. There is also a thrust bearing to handle the thrust created by the action of the exhaust gas on the turbine blades.

In confirmation of the precautions taken in the design and the special features incorporated against overheating, the Moss apparatus has never given any appreciable overheating trouble in any operative tests yet conducted. The nozzles, which are subjected to the most severe heating conditions, have shown a slight red colour after considerable running, but none of the other parts has become hot enough to reach a visible red. Undoubtedly the successful results obtained in this respect are due largely to the provision for free air circulation around the turbine and equally free method of exhaust. In the writer's opinion Dr. Moss has been entirely justified in claiming slightly more room at the front of his machine than is allowed by the normal position of the propeller of the Liberty engine, for this permits the design of the apparatus in such a way as to get about as good cooling effect as is possible in the necessarily limited space available. The matter of the heat dissipation is of premier importance in any development work of this nature.

In order to prevent the nozzle box and exhaust manifolds from getting out of shape due to the temperature and the pressure of the gas within, these chambers are internally braced by means of cross stays which are welded to the casings. This was found necessary due to the fact that the nozzle box



Bureau of Standards curve between pressure and altitude at a temperature of 50° F.

must not be allowed to distort to any extent, and in order to maintain a good joint between the nozzle box and the manifold on either side the manifold must be made quite rigid without being heavy. The cross stays have proved a most satisfactory expedient.

Limitations and Future Possibilities of Supercharging

Of course, one of the first considerations in connection with the adding of any equipment or accessory to an aeroplane is whether or not the increased complication and additional weight which it entails are justified in the advantage gained. The turbo-supercharging system without question adds greatly to the complication of the power-plant of the plane, increases the number of things that can get out of order, and contributes some 200 to 300 lb. to the total weight of the ship. Unless automatically controlled, it also means one more unit for the pilot to handle, when he already has about as many things to control as one human being can possibly take care of.

Further, due to the very high operating temperatures of the devices that have so far been designed (the temperatures range anywhere from 1,250 to 1,400 degs. Fahr.), there is an added fire risk where a supercharger is used, which is a factor of no small importance. To minimise the danger from this source, it is impracticable to have the combustible parts of the fuselage—wood and fabric parts—very near the supercharger. This would ordinarily mean a wider fuselage than would otherwise be necessary.

Another thing that enters into the problem is the matter of the propeller. If the screw is designed to operate efficiently in conjunction with the plane at or near the ground level, this same propeller will not be able to hold the engine down to proper speeds when in the less dense atmosphere at altitudes, if there is some form of supercharging apparatus maintaining the engine's power at approximately the same value as at ground level. It would be impossible to design a fixed-pitch propeller to operate efficiently with the supercharged engine; therefore, when the supercharger is developed to the point where it is entirely practical for high altitude planes, we must also have adjustable pitch propellers so that as the height is increased the pitch of the screw can be changed to get the greatest advantage out of the supercharger boost. This, then, gets down to the fact that the supercharging apparatus must not only be charged with the added weight which it adds itself, but it must also be considered as weighing whatever additional the variable pitch propeller figures as compared with the fixed-pitch type. Not only that, but there has not as yet been a successful type of variable pitch air screw developed, which means that this experimental work should be carried on along with the development of the supercharging system itself. The variable pitch propeller spells still more weight, further complication of the aeroplane, and last, but not least, another control lever for the pilot to worry about.

Again, the supercharging system must be practically airtight on both the induction side and the exhaust side. The apparatus cannot operate satisfactorily if there is any pressure leakage either where the induction pipe joins the air discharge of the compressor, or where the carburettor or carburetors attach to the intake pipe. At 20,000 ft., as an example, the pressure outside the induction pipe is about 7.5 lbs. per sq. in., whereas within the induction pipe the pressure is about twice this amount. The reason for tight joints is therefore obvious. In order to have as little pressure drop on the exhaust side between the point of engine exhaust and the point where the pressure is utilised to drive the turbine rotor, it is also apparent that there must be no leakage around the joints of the cylinder exhaust passages to the exhaust mani-

fold, or at the juncture of the manifold to the turbine nozzle box. Both of these conditions of tight joints are difficult of fulfilment under field service conditions, as will readily be appreciated, but by the use of special forms of gaskets and the application of red lead to the flange connections this difficulty has been largely overcome in the experimental work so far done. In making these connections on the exhaust side, it also has to be borne in mind that due to the high pressure and temperatures in maximum operation of the apparatus allowance must be made for expansion of the manifolds and gas casing, for otherwise these parts would soon warp and crack. Therefore, although tight joints are essential, there must also be a certain degree of flexibility to the exhaust assembly. Possibly some form of expansion joint might be devised which would allow for movement, while at the same time maintaining pressure-tight connections between cylinders and exhaust headers, and headers and turbine.

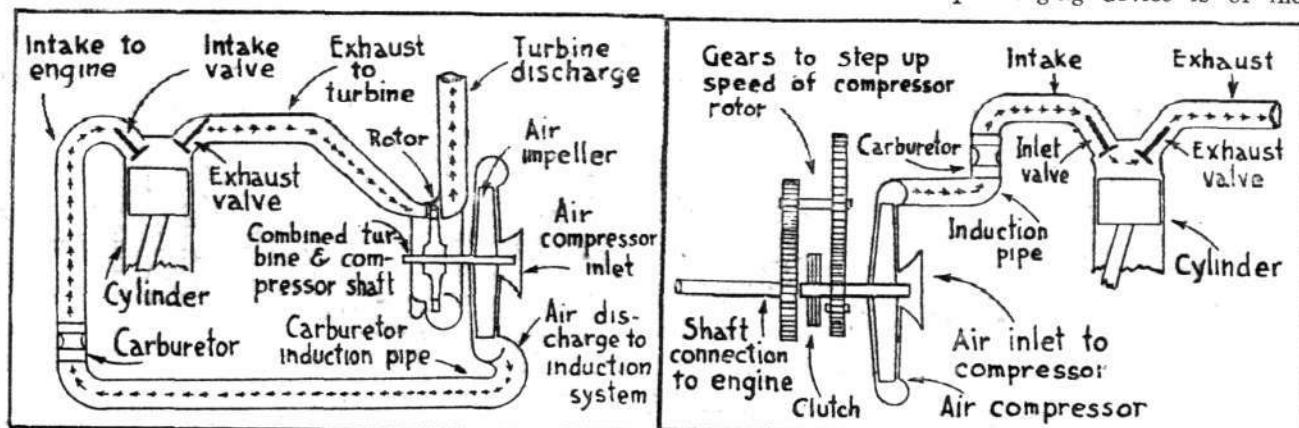
Use of a turbo-supercharger—or any supercharging apparatus, for that matter—of necessity means greater petrol consumption. This at first thought might seem to be a serious objection, in that it would mean a lesser flight range for the supercharged plane. However, when it is considered that such a plane would, due to the constant power delivery regardless of the altitude, be capable of greater speed, and hence would cover more distance in a given time than the ordinary plane, the increased fuel consumption would be more than compensated for by the greater distance covered with each gallon of fuel.

Tests have shown that a Liberty engine on which a supercharger is installed uses anywhere from 10 to 15 per cent. more fuel per horse-power-hour than does a standard Liberty engine, which on the average has a fuel consumption of about 0.504 lb. per horse-power per hour.

Although the writer has no data on which to base such an opinion, it seems altogether likely that there would be some added trouble with the exhaust valves of a supercharged engine on account of the extremely high temperature and pressures. This would no doubt mean the use of special material for these valves, otherwise they would be prone to excessive pitting, wearing and burning, which would sooner or later affect the engine's power.

Up to a certain point, the fact that the compressed air would be heated above normal would have a tendency to promote efficient vaporisation of the fuel. If the air attained too high a temperature, however, it would be detrimental to the mixture. The criterion of the amount of superheating of the air would be the temperature necessary to complete vaporisation of the fuel. For the reason that in operation the temperature of the air sent to the carburettor by the compressor is often above that required for complete fuel vaporisation, it has been found necessary in Europe to instal some form of air-cooling device between the compressor and the carburettor to bring the air back to the efficient temperature. These air radiators have been either of the water-cooling type or merely atmospheric air coolers. The necessity for this auxiliary device has not been proven, however. It may not make enough difference in the practical operation of the supercharger to warrant its installation.

It takes anywhere from 5 to 10 per cent. of the engine's delivered horse-power to drive the supercharger. Roughly, the engine without super-compression delivers only 60 per cent. as much power at 15,000 ft. as it does at ground level; at 20,000 ft., it can furnish but about 50 per cent. as much as at the ground. Therefore, figuring the supercharger means a horse-power recovery of 30 per cent. at 15,000 ft., and a recuperation of 40 per cent. at 20,000 ft. This serves to illustrate that the supercharging device is of increasing



Diagrams showing the principles of supercharging systems, driven respectively by exhaust turbine and engine gearing

advantage as the altitude is increased, providing it performs its functions of maintaining constant power delivery. It does not seem likely, however, that the Rateau principle can be utilised to advantage for operation at altitudes over 20,000 ft. At this height, the apparatus is rotating about as fast as possible within the safe limits of the available steels, and the operating temperatures are also about as high as known materials will withstand.

However, it seems that, when all is said and done, even though the supercharger were capable of operating efficiently only to 15,000 ft., it would be worth putting on an engine.

But, in the final analysis, supercharging is not intended for planes that are to be used for moderate altitude flying. It is of greatest advantage to the ship which is to be used for fast service at extreme levels. Flying steadily and on a straight course in the rarefied atmosphere of some four miles above the earth, the ship whose engine is able to develop the same power under these conditions that it delivers at the

ground is destined to be the fast transportation plane of the future. With less resistance to its forward motion in this rarer atmosphere, yet with its power unaffected by this atmospheric condition, the future supercharged plane presents possibilities for speed that are unattainable as yet with any type of plane. With constant power, a propeller that will handle that power in the less dense atmosphere and with this advantage of lower resistance to forward motion, 200 miles an hour is almost within reach.

The long-range gun projects its missile up into the rarer atmosphere where the resistance to its travel is reduced. By this means its terrific speed is made the most of in covering seemingly impossible distances. So with the supercharged aeroplane of the future. Operating in a medium of less resistance, it can secure all the advantage of this rarer medium without its disadvantages.

The possibilities of development along this line, principally for long distance travel, are tremendous.

THIRD ANNUAL R.A.E. SPORTS

On Saturday, August 16, the third annual sports of the Royal Aircraft Establishment Athletic Club were held on the R.A.E. sports ground in ideal weather, before 3,000 or more people. A splendid programme was gone through, and among those present were:—Mr. and Mrs. Sydney Smith (S.R.A.E.), Vice Air-Marshall Ellington, Maj. Brooke-Popham, Col. Blackburn, Maj. Keiyes, Maj. Bishop, Maj. and Miss Grinstead, Mr. Broman, Capt. Maxwell, Capt. and Mrs. Short, Capt. and Mrs. Russell-Jones, Lieut. Ginyill, Rev. Basil Phillips, Rev. Jackson, Lieut. and Mrs. Harrison, Miss Thornton (Administrator), Miss Fletcher (Assistant Administrator, W.R.A.F.), Maj. Turner, Capt. Saunders, Miss Hendrick, and Mr. and Mrs. Salmon.

A great feature, was the fine running of E. B. West, who won the Bullivant Cup outright, then left the closed events (which showed the true spirit of a sportsman) and went for the 100 yards open handicap, and 220 open, winning both, in 9 4-5 secs. and 22 9-10 secs. respectively.

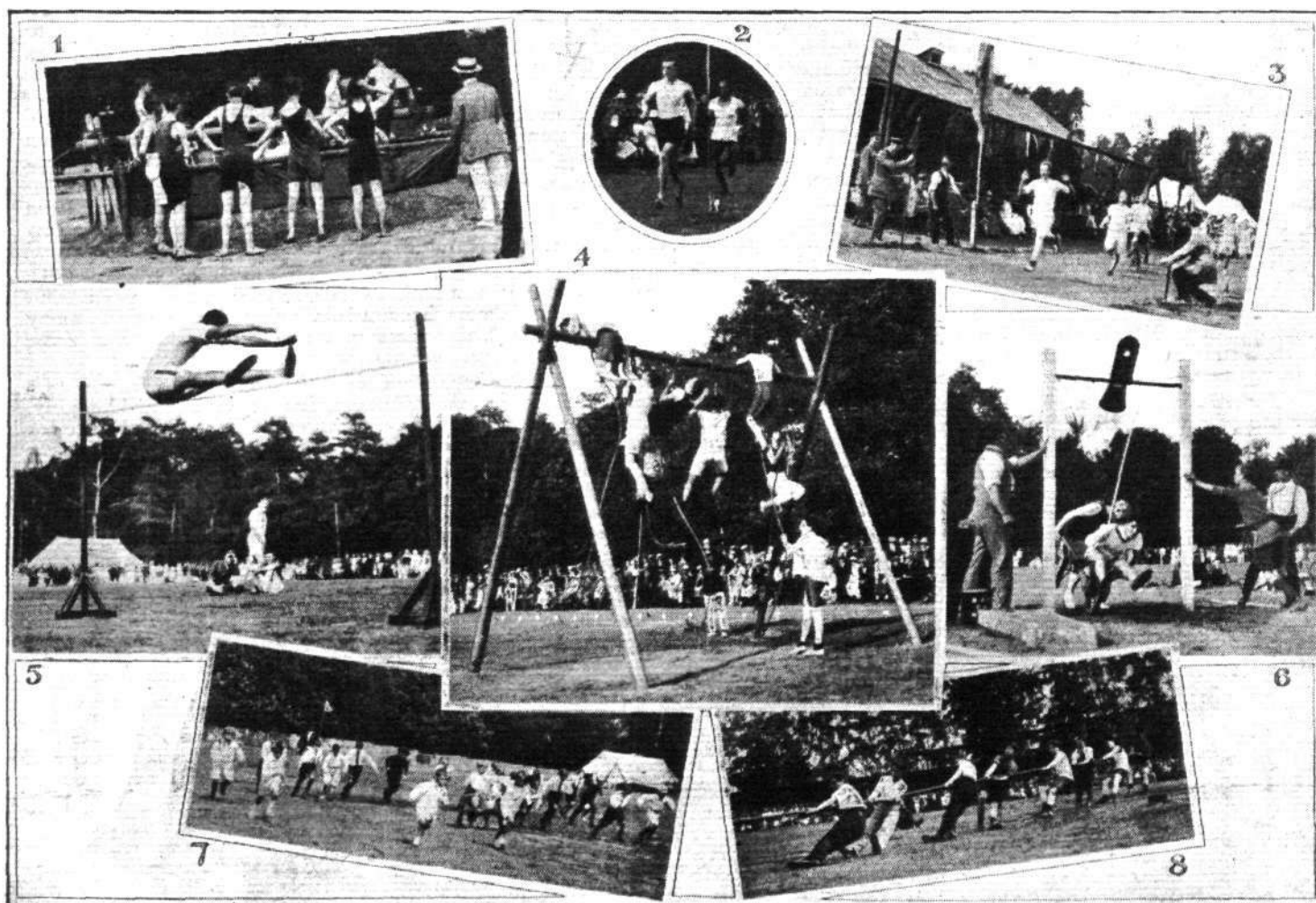
The various events for lads under 18 showed that the R.A.E.A.C. have some nice runners coming on. The best per-

formance was by F. Hague. Though only 17 years of age, he finished second in the 880 yards handicap and third in the mile. The many other events were keenly interesting, many decisions being obtained by inches on the tape. A great deal of excitement was caused in the open mile, in which an Indian soldier took part for exhibition, although he took things quite easy at the start and finished first.

Another cup was won outright by H. E. Reeves in the 7-mile Marathon, and R Department won the Tug-of-War for the third time.

During the afternoon a display of physical drill was given by the W.R.A.F. of the Southern Aircraft Repair Depot. This was one of the best events of the afternoon, and reflects great credit on Sergt.-Maj. Keene, R.A.F., who was assisted by Sergt. Wilbourne and Corpl. Rawlin, R.A.F. The officials are to be congratulated on the way in which the sports were organised. The prizes were kindly presented by Mrs. Sydney Smith, amid cheers.

A fancy dress dance was held in the R.A.E. Canteen in the evening, which ended another memorable day to the R.A.E.



ROYAL AIRCRAFT ESTABLISHMENT SPORTS: 1. Final of the boys' pillow fight. Winners F.I.E. 2. Finish of the open mile event. 3. Finish of the 220 yards handicap. 4. The final of the open obstacle race. Won by A. Beagley. 5. The high jump. 6. Tilting the bucket. 7. Start of the 50 yards handicap for boys under 10. 8. Final of the tug-of-war.

MENTIONED IN DISPATCHES

It was announced by the Air Ministry on August 29 that the following officers and other ranks of the Royal Air Force (including *personnel*, Women's Royal Air Force) have been brought to the notice of the Secretary of State in respect of the valuable services they have rendered in connection with the War, and a note to this effect will accordingly be made in the Official Records:—

Maj. C. R. Abbott, M.B.E.; Lieut. (A./Maj.) F. B. Adams (Wilts. R.); Lieut. (A./Capt.) H. A. Adams (A.P.D.); Capt. (A./Maj.) W. B. Adams; Lieut. (A./Capt.) P. E. D. Addis (Som. L.I.); Lieut. G. J. E. Agnew; Capt. F. R. Alford, M.C. (Can. M.G.C.); Sec. Lieut. G. K. Alling; Lieut. (A./Capt.) C. E. Amore; Sec. Lieut. B. D. Anderson; H./Lt. and A./Capt. G. F. Antell (Can. Ord. C.); Lieut. A. Appleby, (R. Fus.); Lieut. (Hon. Capt.) A. G. T. Applin; Lieut. (A./Capt.) C. F. Apthorp; Maj.-Gen. H. T. Arbuthnot, C.B. (R. Arty.); Capt. (A./Maj.) C. L. Archbold; Lieut. E. L. Ardley (K.R.R.C.); Lieut. H. D. Arkell; Lieut. J. A. Armstrong; Lieut. G. D. Ashby (R.G.A., S.R.); Lieut. N. H. Astley; Adminstr. Miss M. A. Atkin; Sec. Lieut. J. A. Atkinson; Capt. J. C. Atkinson; Sec. Lieut. F. T. L. Avis.

Maj. (A./Lieut.-Col.) P. Babington, M.C., A.F.C. (Hants. R., T.F.); Sec. Lieut. L. Badger, M.M. (R.E.); Chapln. (Civ.) Rev. W. A. Badger; Capt. E. P. L. Baker (S. Staffs. R.); Sec. Lieut. H. Baker; Lieut. (A./Capt.) P. D. Baker (R.A., T.F.); Capt. C. W. Baldwin (Dur. L.I.); Lieut. (A./Capt.) M. Ballard; Capt. C. Banyard; Lieut. J. H. Baring-Gould (N. Dev. Hrs.); Lieut. A. H. Barnard; Lieut. (A./Capt.) A. W. Barnett; Deputy Adminstr. Mrs. N. A. M. Barnett; Lieut. J. C. Barrett; Sec. Lieut. (A./Lieut.) D. Barron (R. Hdrs.); Lieut. (Hon. Capt.) L. E. Barry (R.A.S.C.); Lieut. E. V. Bashford; Sec. Lieut. H. Bates; Lieut. A. H. Beach (Can. Inf.); Capt. E. A. Beaulah (Lincs. R.); Capt. B. F. Bedford; Sec. Lieut. (A./Lieut.) C. E. Beeson, Lieut. (Hon. Maj.) W. R. Bernard (R.N.); Lieut. A. E. Biggs; Capt. A. A. Bisset (R.A.M.C.); Asst. Adminstr. Miss I. Black; Lieut. (A./Capt.) P. G. Black; Maj. P. Blair, R.F.A.; Capt. M. B. Blake (Canada); Maj. (A./Lieut.-Col.) G. Blatherwick; Capt. E. C. Blight; Lieut.-Col. R. G. Blomfield, D.S.O. (Washington); Lieut. B. W. Blower (Shrops. L.I.); Capt. A. R. Boeree (Suff. R.); Capt. A. Bolton, M.C. (R. Sc. Fus.); Maj. R. J. Bone, D.S.O.; Capt. J. E. Bonnicksen; Maj. (A./Lieut.-Col.) H. B. Bonning; Sec. Lieut. C. L. Booth; Lieut. J. R. S. Borman (Bord. R.); Capt. H. G. Bowen; Maj. A. C. E. S. Bowly (S. Staffs. R.); L. H. K. Boysen; Sec. Lieut. (A./Capt.) C. W. Braddy; Lieut. J. W. Brash (R.A.M.C.), S. R.; Capt. S. Brew; Lieut.-Col. W. Briggs (Washington); Lieut. H. Bristow (E. Surr. R.); Capt. W. C. Broadhead; Sec. Lieut. W. J. Brooker (R.E.); Lieut. (A./Capt.) G. E. Brookes; Lieut. (Hon. Capt.) A. E. Brooks (R. Dgns.); Sec. Lieut. (A./Lieut.) E. W. Brooks; Lieut. (H. and A./Capt.) A. Broome (3/R.L.R.); Capt. E. B. Broughton (R. Fus.); Sec. Lieut. G. A. Brown (E. Surr. R.); Lieut. H. A. Brown; Lieut. J. M. Brown (H.A.C.); Maj. V. S. Brown; Lieut. W. A. Brown (North'd. Fus.); Lieut. C. P. Browne; Maj. R. W. Bruce (Can. Ind.); Lieut. W. R. Bucknell (R. Hrs.); Maj. (A./Lieut.-Col.) K. L. Buist (H.L.I.); Lieut. E. J. A. Burke; Capt. E. E. N. Burney, M.C. (R. Berks); Maj. W. Burningham-White; Lieut. A. E. Bush; Lieut. L. A. Bushe (24th Can. Inf.); Lieut. W. N. Bussell (Middx. R.); Lieut. R. W. P. Butler (Rif. Bde.); Maj. (A./Lieut.-Col.) C. A. J. Butler, O.B.E. (Scot. Hse. Yeo.).

Capt. R. Cadman (N. Staff. R.); Sec. Lieut. (A./Capt.) A. R. Caldicott; Lieut. A. C. Campbell-Orde; Capt. P. P. Capelli (R.A.S.C.); Lieut. T. Capps (3rd Res. Hsrs.); Sec. Lieut. (A./Capt.) L. E. Carter, D.C.M.; Lieut. (A./Capt.) E. M. Cashmore; Lieut. (A./Capt.) H. Chalkley (R.E.); Maj. J. L. Chalmers, M.C.; Maj. H. F. Champion, A.F.C. (S. Afr. Fes. and R. Bde.); Capt. A. H. Chapman; Lieut. (A./Maj.) F. T. Chapman (Lond. R.); Lieut. J. W. Chapman (K.O.S.B.); Sec. Lieut. O. Charlton; Capt. A. E. Charlwood (R. Suss. R.); Capt. B. P. Chase; Sec. Lieut. R. St. G. Chester-Master; Lieut. (Hon. Capt.) G. Chetwynd-Stapylton; Capt. (A./Maj.) E. Childers, D.S.C.; Capt. D. W. Clappen; Capt. (A./Maj.) A. G. Clark; Capt. H. L. U. Clark; Lieut. M. J. Clark (Aus. Forces); Lieut. (A./Capt.) B. A. Clay (Hussars); Capt. (A./Maj.) A. Clayton; Sec. Lieut. F. Clayton; Maj. E. C. Clements; Lieut. E. A. Coghlan (Aus. L. Hse.); Hon. Capt. B. S. Cohen; Capt. E. D. Cole (14th Lond. R.); Capt. S. N. Cole; Capt. (A./Maj.) J. P. Coleman, A.F.C.; Lieut. J. A. B. Colin; Chapln. Capt. G. H. Collier; Sec. Lieut. (H. and A./Lieut.) A. Colling (Manc. R.); Maj. G. C. Colmore; Lieut. R. B. Collins (4th Norf. R.); Lieut. (Hon. Capt.) C. S. Coltsdon, D.S.C.; Lieut. O. F. Conoley (R.F.A., T.F.); Deputy Adminstr. Miss Mabel Louise Lillian Cooke; Lieut. (A./Capt.) H. Cooke-Smith (Lond. R.); Capt. (A./Lieut.-Col.) F. Cookson (R.E.); Capt. W. J. Coombes; Maj. A. R. C. Cooper (Rif. Bde.); Sec. Lieut. (A./Lieut.) A. T. Cooper; Maj. A. Corbett-Wilson; Asst. Adminstr. (A./Adminstr.); Mrs. Winifred Margaret Corbett; Lieut. R. P. Coulter; Capt. J. A. Cowling; Capt. (A./Maj.) C. J. W. Crichton (Yorks R.); Capt. J. Crichton; Capt. L. G. Le B. Croke; Capt. L. Crooks; Capt. R. H. Cronyn (Canada); Lieut. R. R. Crosby (H.A.C.); Lieut. C. J. C. Croydon (Canada); Lieut. J. J. A. Crozier (Lond. R.); A./Matron-in-Chief Miss Joanna Margaret Cruickshank (Q.A.I.M.N.S.I.); Asst. Adminstr. Miss Helen Muriel Culley; Lieut. G. L. Cunningham; Capt. (A./Maj.) W. B. Cushion (Manc. R.).

Capt. W. R. C. Da Costa (Can. Art.); Lieut. (A./Capt.) H. G. Dadley, D.C.M.; Lieut. J. G. Dainty (Leic. R.); Capt. J. E. H. Dakin; Lieut. W. C. Dale (North'd. Fus.); Lieut. G. S. Dalgleish (R.A.S.C.); Sec. Lieut. (A./Lieut.) F. Dallow; Maj. E. Dalziel; Sec. Lieut. (A./Capt.) E. P. Dampier; Lieut. (A./Capt.) F. Dance (Middx. R.); Lieut. W. Dancy (R.G.A., S.R.); Sec. Lieut. H. J. Dann; Capt. H. D. A. Dart; Capt. M. G. Dashwood; Lieut. (A./Capt.) W. H. Date; Deputy Adminstr. Miss E. I. David; Capt. A. P. Davidson; Sec. Lieut. A. E. W. Davis; Maj. L. Dawes (Middx. R.); Capt. A. J. Dawson (Bord. R.); Sec. Lieut. (A./Lieut.) W. R. Day; Lieut. (A./Capt.) W. H. Dean (E. Lancs.); Capt. G. I. N. Deane (Tyne Eng.); Maj. G. Dennison; Lieut. (A./Capt.) J. D. de Pencier (Can. F.A.); Lieut. (A./Capt.) O. W. de Putron (D.L.I.); Lieut. (Hon. Capt.) F. Dickinson (Leic. R.); Lieut. (A./Capt.) F. C. E. Dimmick; Capt. G. M. B. Dobson; Capt. A. W. Dods (R.F.A.); Capt. (A./Maj.) F. P. Don (Scottish Hse.); Asst. Adminstr. Miss O. P. Downes; Capt. H. J. N. Drope (Canada); Lieut. (A./Capt.) H. W. G. Drummond (1/B.C. R.); Capt. J. M. Drysdale; Sec. Lieut. (H. and A./Capt.) T. R. Duff (A. and S. Highrs.); Capt. R. Duncan, M.C. (Can. M.R.); Capt. (A./Maj.) S. W. Dunkley; Lieut. (A./Maj.) C. W. Dyer (Middx. R.).

Maj. Sir J. Eardley-Wilmot, Bt. (Rif. Bde.); Asst. Commndt. (Cl. 2) Miss O. Earlam; Capt. H. M. Earnshaw (R. War. R.); Lieut. (A./Capt.) H. W. Eaton (Roy. Scots); Sec. Lieut. F. G. Edgington; Lieut. (A./Capt.) E. N. T. Edwards (R.F.A.); Capt. H. M. Edwards; Sec. Lieut. (A./Lieut.) R. W. Edwards; Lieut. (Hon. Capt.) H. M. Eldridge, M.C. (Northants R.); Capt. R. A. G. Elliott (R.A.M.C.); Maj. T. K. Elmsley; Lieut. (Hon. Capt.) R. Elphick (Lond. R.); Lieut. (A./Capt.) E. Emley (Roy. D.C.); Capt. J. Erskine (Gord. Highrs.); Capt. (A./Maj.) G. F. Evans (R.E.S.R.); Lieut. (A./Capt.) J. H. Evans (R.A.S.C.); Capt. C. R. Evershed; Lieut. F. J. C. Exton; Lieut. H. W. Eyton-Jones.

Lieut. M. O. Fairhurst; Lieut. C. D. Fairweather (Canada); Lieut. F. J. Farlow; Lieut. A. V. Farrier (D.C.L.I.); Sec. Lieut. C. Fenn; Lieut. W. B. Ferrier; Capt. A. Ferris (R.I. Rifles); Sec. Lieut. H. H. French (Can. Signal Serv.); Lieut. (A./Capt.) A. L. Fiddament; Maj. L. Findlater, M.C. (Manc. R.); Lieut. J. S. Flanagan (Natl. Vol.); Capt. (A./Maj.) C. R. Fleming-Williams; Lieut. F. L. Fletcher (Manc. R.); Maj. S. Flower; Deb. Adminstr. Mrs. E. B. Fosbrooke; Lieut. W. W. Foster; Sec. Lieut. D. A. Fowler (R.E.); Capt. H. T. Foxen; Lieut. W. N. Fraser (Rif. Bde.); Lieut. H. A. Francis; Lieut. J. Francis; Asst. Commndt. (2) Mrs. C. S. French; Lieut. (A./Capt.) S. T. Fripp; Hon. Capt. (A./Capt.) G. W. Frost (N. and D.R.); Capt. F. H. Furness-Williams (R.F.A.).

Lieut. R. Gambier-Parry (R.W. Fus.); Lieut. P. R. Garner; Capt. A. Garrad (Som. L.I.); Capt. T. R. Garrigan; Maj. P. Garton; Capt. A. D. Gaye (Bed. R.); Lieut. (A./Maj.) A. H. A. Gem, M.C. (7th N. and D.R.); Capt. A. H. George (6th Ches. R.); Lieut. F. O. Gibbon; Lieut. (A./Capt.) A. R. B. Gill; Capt. S. W. Godin; Lieut. (A./Capt.) A. H. Goldie (Bed. R.); Capt. W. E. Gooday (U.S.A.); Sec. Lieut. L. E. Goodman; Capt. J. A. Gordon; Capt. and Q.M. J. Gordon (R.G.A.); Lieut. M. S. C. Gordon (Can. I.); Lieut. G. A. Gowler; Capt. E. R. Grange, D.S.C.; Lieut. A. G. W. Grantham (Dors. R.); Lieut. D. S. Gray, Capt. J. E. A. Greatorex; Sec. Lieut. (A./Capt.) H. J. L. Greatwich; Capt. F. M. Green; Capt. T. Greening; Capt. H. B. Griffith (Canada); Sec. Lieut. G. V. Grundy; Lieut. C. Guthrie; Lieut. R. P. Guy.

Sec. Lieut. (A./Capt.) H. Hackney; Lieut. C. N. Haines (R.F.A.); Lieut. J. H. Halliwell (Liverpool R.); Capt. (A./Maj.) M. C. P. Hamer; Maj. (A./Lieut.-Col.) B. H. N. H. Hamilton, D.S.O.; Lieut. (A./Capt.) R. F. Hamlyn (Lond. R.); Lieut. (A./Capt.) G. A. D. Hancock; Capt. W. A. Hancock; Capt. F. M. Hannay; Lieut. R. W. W. Hardie; Capt. F. M. Harding; Sec. Lieut. W. A. Hardwick (E. Yorks R.); Capt. P. S. Hargreaves; Capt. H. R. Harker, M.C.; Capt. (A./Maj.) J. R. Harland; Lieut. E. Harling (L. N. Lanc.); Capt. H. D. Harman, M.C. (Glos. R.); Lieut. G. Harris; Capt. H. G. Harris; Lieut. G. D. Harrison; Lieut. P. N. Hart (R. Highrs.); Sec. Lieut. (Hon. Capt. and A./Maj.) C. Harvey (12th Lon. R.); Capt. H. W. R. Haselhurst (North'd. Fus.); Maj. (A./Lieut.-Col.) C. K. Haskins, D.S.C. (R.N.); Lieut. C. F. P. Haslegrave; Capt. (A./Maj.) P. H. Hafield (Medical); Capt. (H. and A./Maj.) A. E. Hatton (Can. Engrs.); Capt. (A./Maj.) C. Hayes (K.O.Y.L.I.); Capt. W. G. E. Hayman (R.A.S.C.); Lieut. (A./Capt.) M. C. Hayter (Ind. Cav.); Maj. G. Hazelton; Capt. R. J. Hearn (R.A.M.C.); Capt. (A./Maj.) M. Henderson, D.S.O. (Sea. Highrs.); Sec. Lieut. (Hon. Capt.) J. Hewitt (Durban L.I., S. Afr.); Capt. F. W. Hill; Capt. G. T. R. Hill, M.C.; Lieut. S. Hill; Lieut.-Col. F. R. G. Hoare, C.B.E. (Canada); Capt. F. Hobson; Maj. V. Hodson (Can. Milita.) (Canada); Lieut. (A./Capt.) W. Hoffert (11th Manch. R.); Lieut.-Col. R. W. Hogarth; Maj. E. Hogg; Capt. G. L. Holmes; Lieut. G. B. Holmes; Capt. (A./Maj.) R. H. Hood; Capt. E. H. Hooper; Lieut. (A./Maj.) F. H. Hooper (R.F.A.); Capt. F. J. Hooper; Lieut. (A./Capt.) H. Hooper (R.E.); Capt. (A./Maj.) L. S. Hooper (R.A.M.C.); Lieut. (A./Maj.) W. H. Holroyd; Sec. Lieut. (A./Maj.) W. F. M. Hopkins (Glouc. Yeo.); Capt. W. E. Horan; Capt. A. F. Horden (S. Staffs. R.); Maj. T. B. Hornblower (Suss. R.); Lieut. F. J. Horrell (New Zealand Mtd. Rif.); Maj. E. D. Horsfall, M.C. (9th R. Bde); Capt. C. Horsfield; Capt. P. G. Horswell; Lieut. (A./Capt.) C. H. Howell; Lieut. (A./Capt.) W. H. Howell (Essex R.); Maj. J. R. Howett; Capt. F. Hudson; Capt. W. Huggan; Capt. W. Huggan; Capt. E. Y. Hughes (R.F.A., T.F.); Adminstr. Mrs. A. Hughes-Gibb; Capt. H. R. B. Hull (R.N.) (Med.); Capt. H. T. Humfress (R.E.); Lieut.-Col. J. W. L. Hunt; Lieut. J. Hutcheson (R. Ir. R.); Capt. H. G. Hutchinson (R.M.L.I.); Lieut. A. P. Hutton.

Capt. A. E. Illingworth (6th North'd. Fus.); Depy. Adminstr. Miss E. Ingram; Capt. (A./Maj.) J. Inwood (Canada); Maj. A. W. Iredell; Capt. W. B. Ives (3rd W. Yorks.).

Lieut. B. Y. Jackson; Capt. H. F. Jackson; Lieut. (A./Capt.) J. B. Jackson (N. and D. R.); Maj. J. L. Jackson, M.C. (Conn. R.) (Canada); Maj. G. Jacques; Sec. Lieut. (A./Lieut.) A. H. James; Capt. A. P. James; Sec. Lieut. W. E. James; Lieut. (A./Capt.) J. W. Jennings (28th Lond. R.); Lieut. J. H. Jephson (Suss. R.G.A., T.F.); Lieut. (A./Maj.) F. Jewell; Sec. Lieut. W. H. Jinman; Capt. A. R. Johnston; Capt. F. R. Johnson, D.S.C.; Lieut. (A./Capt.) R. E. Johnson (K.R.R.C.); Lieut. C. H. Jones (Lond. R.); Lieut. (A./Capt.) H. Jones; Lieut. (A./Capt.) J. W. Jone (R.E., T.F.); Lieut. S. N. Jones (R. War. R.); Lieut. (A./Capt.) W. Jones (Worc. R.).

Sec. Lieut. (A./Capt.) H. H. Kalber; Lieut. (A./Capt.) R. C. Kean (5th S. Lancs.); Capt. R. H. B. Ker (B.C. Regt.) (Canada); Sec. Lieut. C. E. Kitchenside; Lieut. G. M. Klocker (R.A.); Capt. R. H. Knowles (Med.); Maj. S. A. Laird; Capt. the Rev. P. C. C. Lamb, B.A. (I. Yeo.), C.F.; Capt. (A./Maj.) W. Lambert (R. Fus.); Sec. Lieut. H. D. Lane; Lieut. (A./Capt.) H. F. D. Lane; Maj. R. C. Lane (Middx. R.); Capt. G. S. Lardner (O. and B. L.I.); Capt. C. F. Latimer; Capt. J. D. Latta, M.C.; Capt. (A./Maj.) R. D. Law (W. Yorks.); Lieut. (A./Capt.) G. A. Lawlor; Lieut. T. A. E. Laybourn; Hon. Capt. F. C. Lea; Capt. N. Lea; Lieut. (A./Capt.) R. Leake (Lond. R.); Maj. L. W. Learmount, D.S.O., M.C.; Maj. P. A. O. Leask (R. Ir. Rif.); Sec. Lieut. (A./Lieut.) J. G. Le Brun; Maj. J. H. Lederboer; Capt. H. A. H. Leatham; Lieut. (A./Maj.) W. A. Legg (R.E.); Capt. H. D. Lehmann; Maj. T. G. Leith, M.B.E.; Lieut. J. M. J. Le Mee (Newfound. R.); Lieut. P. I. Lewis (R. Fus.); Maj. (A./Lieut.-Col.) J. H. Lidderdale; Lieut. S. Lindsey (Rif. Bde.); Sec. Lieut. W. Liniker; Sec. Lieut. (H./Capt. A./Maj.) C. A. E. Lloyd (North'd. Fus.); Sec. Lieut. (A./Lieut.) R. Locke; Capt. A. J. Long; Lieut. (A./Capt.) G. W. Longstaff; Capt. (A./Maj.) A. M. Low, D.Sc.; Maj. (A./Lieut.-Col.) S. R. Lowcock; Sec. Lieut. H. F. Luck; Capt. C. R. Lynn.

Adminstr. Miss Margaret McArthur; Sec. Lieut. (A./Maj.) O. C. McCaw (Middx. R.); Lieut. N. S. McConnell (R.A.S.C.); Lieut. C. A. McCreath; Capt. A. D. Macdonald; Lieut. (A./Capt.) F. T. McElwee; Capt. F. S. McGill; Lieut.-Col. O. H. K. Maguire, D.S.O., Australia; Adminstr. Miss Anne May Macintosh; Capt. L. D. D. McKean; Maj. (A./Lieut.-Col.) D. Mackenzie; Maj. A./Col. E. G. MacKenzie (Ry. Fus.); Capt. R. M. B. MacKenzie; Capt. G. McKerrrow; Lieut. (A./Capt.) N. McLeod; Lieut. W. A. McMichael (16th R. Scots); Lieut. (A./Capt.) H. L. McNaughton (R. S. Fus.); Maj. O. C. MacPherson (Canada); Lieut. (A./Capt.) L. G. Mace; Lieut. (A./Capt.) T. Mack; Sec. Lieut. (Hon. Lieut.) W. Mainstone (R.I.F.); Lieut. A. G. Makings; Capt. H. G. R. Malet; Asst. Adminstr. Miss Elizabeth Atherton Mallabone; Lieut. R. A. Manby (8th Welsh R.); Lieut. (A./Capt.) O. W. A. Manning (19th R. Fus.); Capt. L. T. G. Mansell; Capt. F. H. Marshall (Manc. R.); Lieut. (Hon. Capt.) C. H. Markham (North'd. Fus.); Lieut. (A./Capt.) E. H. Marsden (R.F.A.); Deputy Adminstr. Mrs. Adelaide Marshall; Lieut. G. Martyn; Lieut. W. D. Matheson, M.C.; Canada; Lieut. V. D. Mathews (7th D.L.I.); Maj. H. K. Maxwell; Lieut. (A./Capt.) H. A. Maynard; Maj. H. R. Mayo, O.B.E.; Sec. Lieut. J. S. Middleton; Hon. Lieut.-Col. R. G. Millar; Lieut. (A./Capt.) T. E. Mills; Capt. (A./Maj.) G. C. Milnes, M.C. (R. Lanc. R.); Capt. J. M. Mitchell, M.B.E. (Canada); Lieut. J. T. Mitchell; Maj. (A./Lieut.-Col.) H. A. Moore, C.B.E., M.C.; Lieut. R. F. W. Moore; Capt. T. P. Y. Moore; Lieut. (A./Maj.) F. K. Moncur (4th Sea. Hdrs.); Adminstr. Miss Hortense Henriette Montefiore; Lieut. (A./Capt.) E. L. P. Morgan; Adminstr. Miss Mattie Mildred

Morgan; Capt. N. B. Morphy (E. Surr. R.); Lieut. J. P. D. Mostyn (R. Suss. R.); Asst. Adminstr. Miss Jessie Kathleen Mountford-Smith; Capt. A. F. Muir; Capt. (A./Maj.) W. H. Mulville; Lieut. (Hon. Capt.) A. H. Munday; Capt. D. Munro; Lieut. P. J. Murphy (I. Gds.); Maj. G. P. Myers (Lincs. R.); Capt. J. F. Myles.

Lieut. J. C. Nairn; Asst. Adminstr. Miss Dorothy Grace Negus; Capt. C. H. Nelson; Sec. Lieut. (A./Capt.) H. L. Nelson; Hon. Lieut. H. News; Lieut. (A./Capt.) W. J. O. Newton; Maj. R. E. Nicoll; Lieut. (A./Capt.) L. B. Nicholls (R.A.S.C.); Deputy Adminstr. Miss Bertha Nichols; Lieut. R. Nisbet (R.F.A.); Sec. Lieut. J. P. Nolan (R.D. Fus.); Sec. Lieut. J. Noonan, D.S.M.; Maj. G. H. Norman (R.G.A.); Lieut. F. A. Norton; Lieut. C. E. North; Lieut.-Col. A. T. L. Nye.

Capt. S. C. O'Grady, M.C.; Sec. Lieut. K. W. J. Oldridge; Sec. Lieut. (A./Capt.) G. Oliver (Hants. R.); Maj. T. L. Oliver; Lieut. G. P. Olley, M.M.; Lieut. H. M. O'Loughlin (Can. Inf.); Capt. M. A. J. Orde; Capt. R. A. B. Orlebar (9th R. Lancs. R.); Capt. A. C. Osmon; Capt. J. O'Sullivan; Lieut.-Col. H. W. S. Outram; Sec. Lieut. J. A. Owen; Capt. (A./Maj.) R. D. Oxlard (Lond. Yeo.).

Maj. G. H. Padley (8th Lincs.); Lieut. (H./Capt. and Qrmer.) H. Pallett 14th Ches. R.); Capt. G. K. Palmer; Lieut. E. L. Pape; Sec. Lieut. R. J. P. Parer (Aus. F.C.); Capt. (A./Maj.) A. H. Parker, M.C.; Sec. Lieut. C. B. Parker (Canada); Capt. E. Parker (E. Lanc. R.); Lieut. J. D. Parkes; Capt. (A./Lieut.-Col.) G. W. Parkinson (R.E.); Lieut. (A./Capt.) I. W. Parnell; Capt. G. M. Part; Lieut. (Hon. Capt.) F. Paterson; Lieut. A. B. Paton; Capt. (A./Maj.) R. K. Paton (Liverpl. R.); Lieut. A. Patterson (R.G.A., T.F.); Adminstr. Mrs. J. C. Patterson; Lieut. (A./Capt.) A. L. Paxton; Capt. (A./Maj.) H. J. Payn (R.E., S.R.); Lieut. F. A. Payne (R.E.); Sec. Lieut. (A./Capt.) F. C. Payne (Lab. Corps); Lieut. (Hon. Maj.) H. K. Payne; Lieut. (A./Capt.) A. L. Pearce (R. Welsh Fus.); Capt. A. N. Pennell; Lieut. (A./Maj.) R. A. Pennington (R. Fus.); Lieut. F. C. Penny (Aus. I.F.); Sec. Lieut. C. B. Pensotti; Lieut. J. B. Perring (S. Afr. Fces.); A./Capt. R. B. Pigott; Lieut. (A./Capt.) J. E. Pike (D.L.I.); Lieut. W. W. Pitt (N. and D.R., T.F.); Lieut. (A./Capt.) P. L. Plant (R. Ir. Fus.); Lieut. S. B. Plummer (P.P.C.L.I.); Maj. E. M. Pollard (W. Yorks.); Capt. A. W. W. Pope (K.S.L.I. and Lpl. R.); Lieut. (H. and A./Capt.) L. V. Popkiss (Life Gds.); Sec. Lieut. A. G. C. Potts; Lieut. C. M. Powell; Sec. Lieut. (A./Lieut.) L. A. T. Power; Maj. W. G. W. Prall; Lieut. (A./Capt.) D. Price; Maj. H. Pritchard.

Capt. G. E. Quincey.
Sec. Lieut. (A./Lieut.) N. C. Raffin; Lieut. (A./Capt.) S. G. K. Rappley; Lieut. H. E. Rathkins; Capt. A. E. Reed; Sec. Lieut. V. Rees; Sec. Lieut. J. V. Reeve; Capt. J. R. Reilly (Can. Inf.) (Canada); Lieut.-Col. A. E. J. Reiss, O.B.E.; Maj. (A./Lieut.-Col.) J. D. K. Restler; Capt. G. A. Revington; Sec. Lieut. C. Reynolds; Capt. (A./Maj.) A. D. S. Rice (R.G.A., T.F.); Lieut. (A./Capt.) E. A. Richards; Dep. Adminstr. Mrs. N. Richards; Maj. (A./Lieut.-Col.) A. V. J. Richardson; Sec. Lieut. (A./Capt.) F. R. Richardson; Capt. (A./Maj.) G. S. Ridgway; Maj. E. E. Robb; Sec. Lieut. J. Roberts (Hussars); Maj. E. G. L. Roberts; Sec. Lieut. (Hon. Lieut.) F. A. de V. Robertson (I.A.R.O.); Capt. (A./Maj.) J. L. Robertson; Lieut. H. W. Robinson; Lieut. C. P. V. Roche; Capt. F. E. Rogers; Capt. F. Rooks; Capt. (A./Maj.) E. J. D. Routh (K.R.R.C.); Lieut. (A./Capt.) E. H. Russell; Lieut. F. S. Russell, D.S.C., D.F.C.; Maj. F. J. Rutland, D.S.C.; Lieut. (A./Maj.) J. S. Ruttle, M.B.E.; E. Kent R.; Capt. C. Ryder.

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Capt. R. M. Waddington (W. Yorks. R.); Capt. N. W. Wadham (Rif. Bde.); Lieut. H. W. Wadsworth (London R.); Sec. Lieut. C. Waine; Capt. E. N. E. Waldron (I.A.R.O.); Lieut. (A./Capt.) A. R. Walker; Capt. E. G. Walker; Capt. J. B. Walker; Lieut. (Hon. Capt.) S. E. Wall (Northants R.); Lieut. W. Wallace (R.F.A.); Capt. E. B. Waller; Capt. (A./Maj.) J. T. Waller, M.C. (Leic. R.); Maj. P. A. Waller; Lieut. C. H. Wallis; Lieut. L. P. Wallis; Lieut. (A./Capt.) G. V. Walsh (24th Can. Inf.); Capt. J. L. Walshe; Sec. Lieut. (Hon. Capt.) E. H. Walter (Rif. Bde.); Capt. A. B. Walters (Lond. R.); Lieut. F. Walters; Lieut. (A./Capt.) R. M. Ward; Lieut. (Hon. Capt.) T. A. Warne-Brown, D.S.C.; Lieut. A. F. Warner; Capt. (A./Maj.) E. J. Watkins (Canada); Maj. G. J. Watney; Capt. (A./Maj.) H. S. Watson (Tyne E. Engrs. and R.E.); Hon. Capt. (A./Maj.) J. C. Watson; Lieut. (A./Capt.) W. H. Watson (Can. M.G.C.) (Canada); Lieut.-Col. W. O. Watt, O.B.E.; Capt. F. J. Watts (Essex R.); Lieut. R. W. Weatherby; Lieut. (A./Capt.) A. Webb (5th Dgn. Gds.); Sec. Lieut. (A./Capt.) W. G. Webber; Capt. L. M. Wedderburn (R.A.M.C.); Capt. B. Well (R.A.S.C.); Lieut. (A./Capt.) R. G. Weller (R. Fus.); Lieut. E. H. Wells; Maj. J. K.

Wells; Lieut. (A./Capt.) A. M. West (S. Staff. R.); Capt. (A./Maj.) G. Whale; Lieut. (A./Capt.) C. C. Wheeler; Sec. Lieut. (Hon. Lieut. and A./Capt.) T. M. Wheeler (Lanc. Fus.); Asst. Adminstr. Miss M. Whidborne; Capt. (A./Maj.) R. Whiddington; Capt. J. R. H. Whiston (8th N. and D.R.); Sec. Lieut. W. W. Whitehead; Lieut. (A./Capt.) R. P. M. Whitham, M.C. (8th N'd. Fus.); Lieut. (A./Capt.) B. T. Whittaker; Sec. Lieut. E. Whitlesea; Capt. A. F. Wickenden; Sec. Lieut. V. H. Wicks; Lieut. (A./Capt.) H. F. Wilkinson; Lieut. (A./Capt.) F. D. Williams (Canada); Capt. J. Williams (D.C.L.I.); Lieut. K. L. Williams (I.A.R.O.); Capt. (A./Maj.) O. C. Williams; Capt. W. T. S. Williams, D.S.C.; Lieut.-Col. (A./Brig.-Gen.) F. G. Willock, D.S.O. (R.F.A.); Lieut. C. W. Wilson (Dur. L.I.); Capt. D. W. Wilson; Lieut. E. Wilson, M.C. (Middx. R.); Capt. D. Wilson (Castle Bromwich); Lieut. (A./Capt.) J. J. Wilson (E. Yorks. R.); Sec. Lieut. J. J. Wilson (Lond. R.); Capt. M. W. Wilson; Lieut. S. Wilson; Capt. A. Wombwell (Linc. R.); Capt. H. L. Wood; Sec. Lieut. J. W. Wood; Lieut. (A./Capt.) L. Wood (R.G.A., S.R.); Lieut. E. F. Worthington; Lieut. W. S. Wright (Leic. R.); Sec. Lieut. W. Wyatt; Maj. H. N. Wylie; Maj. R. V. Wynn (R. of O., 9th Lrs.).

Lieut. L. E. Yeomans; Sec. Lieut. J. Young; Capt. S. G. Young.
Since the lists of names appearing in this publication were placed in the hands of the printers, the actg. ranks indicated have been relinquished in the great majority of cases.

Warrant Officers, Non-Commissioned Officers and Men (including Personnel, Women's Royal Air Force) —

204528 Ch. Mech. H. P. Abbot; 44853 Cpl. A. C. Adams; 61749 Sgt. E. J. Adams; 204570 Cpl. Mech. J. C. T. Addis; 73887 Cpl. Clk. O. M. Alfred; 313310 Mas. Clk. A. A. Allen; 220293 A. M. 2 (A./Cpl.) J. Allen; 2047625 F./Clk. E. J. Allman; 65825 A./Sgt. W. Almond; 10796 F./Sgt. W. Anderson, M.S.M.; 207560 Sgt. W. D. Anderson; 6499 Sgt.-Maj. J. O. Annan; 17603 Member Miss J. Ansell; 49440 Sgt. F. Anstey; 73011 Sgt.-Maj. G. Apps; 405710 Sgt. A. H. Arch; 5773 Sgt. S. C. Archer; 208032 Mas. Mech. T. Armit; 4991 Ch. Mas. Mech. S. Armstrong; 3137 A./Sgt. R. H. Arnett; 44370 F./Clk. H. H. Atkinson; 8039 Ch. Sec. Ldr. Miss A. Austen.

402311 Cpl. A. J. Bacon; 4773 Member Miss E. Bailey; 300338 Cpl. W. Bailey; 7637 Member Miss E. Baker; 226707 Sgt.-Mech. A. J. Baldwin; 68041 Cpl. E. R. Ball; 204324 Ch. Mech. P. E. Ball; 247242 Ch. Mech. (A./S.M.) F. Bamber; 408390 F. Sgt. T. Banks; 209420 Ch. Mech. W. C. Barclay; R.N.150263 Ch. S. Berth Steward H. Barker; 37914 A./Sgt.L. Barker; 4774 Mas. Mech. L. Barker; 227614 Cpl. Mech. B. W. Barlow; 133516 Sgt. E. W. Barnes; 69299 Sgt. R. Barr; 210275 Sgt. Clk. F. C. Bartells; 4253 S.M.I. C. E. Barton; 204801 Sgt. E. A. Barton; 22734 A./Sgt. T. F. Barton; 119782 A.C.I. J. T. Bartly; 225329 L.A.C. G. Bastick; 210815 F./Sgt. B. Bate; 10106 Ch. Mech. R. J. Bates; 1960 F./Sgt. H. Beaverstock; 126754 L.A.C. C. Bayley, M.M. (late R. Fus.); 19620 Sgt. W. E. Baylis; 65644 F./Sgt. W. Beasley, M.M.; 209965 Sgt. Mech. H. R. Beaumont; 2256 Ch. Sec. Ldr. Mrs. L. J. Bedwell; 4304 S.M. 2 G. Beer; 24749 Sgt. (A./F. Sgt.) J. J. Belham; 72777 A. F./Clk. E. G. Bell; 21274 A./F.-Sgt. C. W. Bellairs; 5998 Member Miss E. C. Bennett; 3378 Member Miss V. Bennett; 4576 Ch. Sec. Ldr. D. Benson; 212766 Sgt. T. Bentley; 12823 Ch. Mas. Mec. W. H. Berg; 2478 Member Miss Z. M. Berrill; 9063 F./Sgt. F. W. P. Best; 73408 A./Ch. Mec. W. P. Best; 27133 Sgt. H. W. Bickerstaffe; 9073 F./Sgt. V. C. Bignell; 314115 Sgt. J. T. Binding; 19357 F./Sgt. A. V. Binsted; 25762 S.M. I. J. E. Bird; 75448 S.M. 2 O. Birley; 224843 F./Sgt. A. W. Bish; 187323 Cpl. C. Bishop; 287 F./Sgt. E. L. Bishop; 25729 F./Sgt. W. J. Black; 1176 Member Miss M. Blackford; 1922 Sec. Ldr. Miss H. Blake; 16879 L.A.C. B. Bloss; 206047 Cpl.-Mech. (W./I.) B. Bocking; 60742 L.A.C. (A./Cpl.) H. A. Boison; 216302 A./F.-Sgt. J. N. Bonnar; 300242 Sgt.-Maj. H. Bonnard; 735 Ch. Mas. Mech. A. J. Booker; 205763 Ch. Mech. G. Booth; 203616 Sgt. Mech. Obs. T. N. Bore, D.S.M.; 18418 F./Clk. O. E. Boreland; 603 Member Miss K. Bostock; 217082 Sgt. R. C. Botting; 69039 L.A.C. P. R. Bowden; 136743 Clk. 2 E. A. Bowdry; 12073 F./Sgt. A. Bowers; 207503 Sgt. H. R. Bowles; 13046 Ch. Sec. Ldr. Miss D. V. Boyle; 214416 F./Clk. L. R. Bradford; 4619 Member Miss G. M. Bretherick; 17785 Sgt. H. R. Brett; 65145 Sgt. W. H. Brett; 2590 Ch. Mech. B. R. Brewis; 13014 S.M. 1 F. G. Bridgen; 19632 Member Miss E. M. Briggs; 20924 Member Mrs. M. B. Brisley; 13326 Senr. Ldr. O. M. Bromley; 56557 L.A.C. F. B. Brooks; 52708 A.M. 1 A. H. Brown; 81259 Sgt. A. S. Brown; 4864 Ch. Mas. Mech. E. A. Brown; 14366 F./Sgt. E. E. Brown; 89855 Sgt. Mech. E. O. Brown; 27719 F./Sgt. G. A. Brown; 33744 A./Sgt. H. Brown; 19 A./Ch. Sec. Ldr. Miss H. M. Brown; 314131 Sgt. J. M. Brown; 86470 Cpl. W. Brown; 2466 F./Sgt. W. Brown; 234319 Clk. 2 G. W. Browne; 57348 Cpl. W. Browne; 203629 Cpl. Mech. J. Bruce; 217934 Sgt. Clk. W. Bryon; 51910 L.A.C. M. T. Buck; 10040 Ch. Sec. Ldr. Miss E. Buckley; 40424 F./Sgt. J. A. Bullivant; 314134 Sgt. M. Bunn; 108806 Sgt.-Major S. P. Bunn; 16848 Sgt. G. W. Burch; 422 S.M. 2 F. A. Burton, R.N.; 29508 Sgt. Mech. F. E. Burton; 207602 Ch. Mech. F. T. Byford; 171777 Ch. Mech. A. J. Byles; 217530 A./Sgt. F. C. Bynoth; 11951 Ch. Sec. Ldr. Mrs. P. Byron.

R.N. 2317043 Ch. Mech. E. H. Caine; 10322 Ch. Sect. Ldr. Miss A. D. Cairns; 25503 Member N. B. Campbell; 205585 Cpl. E. C. Carder; 45611 Sgt.-Maj. F. W. Carline; 243 A./Sgt.-Maj. N. Carlyle; 209778 Ch. Mech. A. G. Carr; 16984 Sect. Ldr. M. Carr; 12472 Ch. Sec. Ldr. M. A. Carstairs; 17346 Sgt. A. B. Carter; 39595 S.M. 1 G. S. Carter; 30694 Sgt. A. H. Cashmore; 17140 Sgt. Clk. F. A. Cassere; A. 2582 Q.M.S. T. G. Cernery; 51093 Sgt. F. E. Chapman; 6935 Sgt.-Maj. T. H. Cheeseman; 219734 A./Cpl. J. Chisnall; 205306 Sgt.-Mech. M. Chunn; 12925 Cpl. A. H. Clark; 37483 Sgt. C. O. B. Clark; 209448 Cpl.-Mech. P. E. Clark; 220624 A./Sgt. P. L. Clark; 207675 Sgt./Clk. A. Clarke; 203863 Sgt.-Mech. W. Clarke; 18237 Sgt. C. E. Claughton; 61371 Sgt. J. P. Cleland; 204461 T.M. 1 H. S. Clements; 56900 A.C. 1 A. B. Clowson; 1676 F.-Sgt. W. A. H. Coates; 9359 Sgt. T. F. Cole; 34890 F.-Sgt. A. B. Coleman; 192345 A.C. 2 J. R. Colley; 13017 A.M. 1 J. Collins; 3109 Member Miss I. K. Collins; 34437 F.-Sgt. A. T. Collis; 206443 Sgt.-Mech. H. A. Coombes; 66272 Sgt. E. V. G. Coombs; 37310 A.M. 1 C. R. Cooper; 15945 Sgt.-Maj. J. Cooper; 3129 Member Miss O. Copeland; 62055 A./Cpl. G. B. Cordwell; 211032 Cpl. A. Cornish; 4109153 Cpl. F. Cornwall; 210339 Cpl. S. H. Couldwell; Can. 72626 Sgt. E. C. Cowie; 3449 Ch. Sect. Ldr. Miss H. G. Cox; 2196 Ch. Mech. W. S. Coy; 205657 Cpl.-Mech. A. B. Crawford; 37508 F.-Sgt. J. Crawley; 4270 Member Miss H. M. Crevald; 44071 Sgt.-Maj. J. W. Crooks; 126108 Sgt. A. Crosby; 187421 Cpl. F. J. Cross; 160052 A./Sgt. J. J. Crowley; 21269 F.-Sgt. W. H. T. Cunningham; 81689 Cpl. F. Curtis; 73478 A.M. 1 J. Cusack.

25086 F. Sgt. W. Dalgetty; 225829 Sgt. Clk. A. M. Dallen; 28470 F. Sgt. R. H. Dann; 935 A. Ch. Sec. Ldr. Miss Violet M. Dann; 3128 Ch. Sec. Ldr. Miss A. M. Darby; 187180 Sgt. R. W. C. Dare (late 4th Devons); 21088 F. Sgt. H. Darlington; 23697 Sgt. S. A. Davey; 18171 Mbr. Miss B. Davidson; 207466 A. Cpl. G. Davidson; 10971 F. Sgt. R. F. Davidson; 210313 Sgt.-Mech. G. Davie; 14777 F./Clk. E. Davies; 26361 Cpl. R. Davies; 45854 A./S.M. S. Davis; 209992 F./Sgt. W. G. C. Davis; 19152 Sgt. A. H. Dawson; 200550 A./Sgt. F. Dawson; 407101 Sgt. F. B. Deacon; 28521 Cpl. (A./Sgt.) J. J. Dear; 18250 Mbr. Miss D. McL. de la Touche; 2877 Ch. Sec. Ldr. Miss D. R. Derrick; 48722 A.C. 1 H. G. Dewey; 6085 Ch. Sec. Ldr. Mrs. E. Dibben; 81606 L.A.C. R. Dickinson; 218108 A./Sgt. W. H. Dickinson; 230867 Clk. 1 T. J. Dingley; 87764 S.M. H. Dinsdale; 75962 Cpl. W. G.



Dockray (106th Sqn.); 9996 Ch. Sec. Ldr. Miss E. Dolton; 1020 Ch. Mas. Mech. R. Donaldson; 18839 Ch. Sec. Ldr. Miss H. F. Dorricott; 10132 Ch. Mas. Mech. H. J. Draper; 409075 A./Cpl. U. Drayton; 212458 Sgt. Mech. R. Duckett; 3992 Sgt. J. Dudley; 80079 Sgt. E. Duffill; 10 Ch. Sec. Ldr. Miss D. M. Dufour; 9985 F./Sgt. A. H. Dunn; 27219 Ch. Sec. Ldr. I. Dunn; 26152 S.M. 1 G. A. Durnford; 228533 A./Cpl. F. W. Durrant.

217928 Sgt. L. G. Easter; 45239 L.A.C. (A./Cpl.) C. J. Eastwood; 52436 Sgt. H. E. Ebdon; 62156 L.A.C. C. W. Edwards; 24646 S.M. 1 W. S. Edwards; 9123 F./Sgt. A. W. Elcombe; 213440 Sgt. Mech. R. Elder; 203121 Cpl. Mech. W. E. Eldridge; 20329 A./Cpl. J. C. Elliott; 967 S.M. 1 J. S. Ellard; 23836 Cpl. W. B. Elliott; 12023 Ch. Sec. Ldr. Miss M. E. Ellis; 15896 Mbr. Miss M. G. Elton; 229274 A.C. 1 C. M. Emsley; 1078 Ch. Sec. Ldr. Miss E. M. Eustace; 24241 Ch. Sec. Ldr. Mrs. D. Evans; 205936 Ch. Mech. A. M. Everard; 200159 Ch. Mech. E. S. Evison; 19373 Mbr. Miss F. I. Eyles.

3737 F./Sgt. W. S. Fairhall; 148868 A./Cpl. W. H. Farley; 205446 Ch. Mech. S. W. Farmer; 313987 Cpl. J. Farquharson; 1081 Ch. Sec. Ldr. Miss E. V. Faulkner; 68115 F./Sgt. J. A. B. Fay; 41205 A./F./Sgt. A. Feltham; 98715 Sgt. W. M. G. Fenton; 218454 Cpl. Mech. A. Ferguson; 18456 Ch. Mech. W. Ferguson; 16313 F./Sgt. W. F. Figgins; 401163 F./Sgt. G. F. Finn; 45009 F./Sgt. E. P. Firth; 61727 L.A.C. G. E. Flack; 35991 Sgt. F. C. Fletcher; 24418 Ch. Mas. Mech. T. Foley; 7041 A./Cpl. F. W. Ford; 219392 Sgt. Clk. J. H. Ford; 231840 Cpl. W. C. Ford; 25579 F./Sgt. W. H. Foster; 401046 F./Sgt. C. C. Fothergill; 218200 Sgt. Clk. H. C. Fountain; 11803 Ch. Sec. Ldr. Miss P. Fowler; 50147 A.C. 1 G. J. Fox; 207124 Sgt.-Maj. 2 H. L. Fox; 166114 W.O. 2 A. Franklin; 48655 F./Sgt. J. R. Fraser; 187370 Cpl. H. F. Frisby; 211814 Cpl. R. H. C. Fullbrook; 204979 F./Sgt. A. G. Furber; 23381 Sgt. Clk. R. P. Futter.

16692 F./Sgt. C. G. Gaff; 402233 S.M. 1 R. Galley; 3202 Ch. Mas. Mech. A. Garbett; 2248 F./Sgt. A. T. Garbett; 11408 F./Sgt. H. Gardner; 75723 L.A.C. U. Gardner; 4439 Sgt. F. Garner; 227632 A.M. 2 J. G. Gatehouse; 9307 Ch. Mech. W. C. Gatehouse; 211596 F./Sgt. F. Gates; 212510 Sgt. Clk. H. W. Gaydon; 81424 Cpl. E. Gellard; 206345 Ch. Mech. (E.) W. K. Gent; 289869 Sgt.-Maj. J. T. Gibbon; 141569 Sgt. C. Gibson; 3096 Sgt.-Maj. 1 W. C. Gilby; 29662 F./Sgt. H. Gladdis; 237598 A. M. 2 W. J. S. Glass; 210267 Sgt. Mech. R. Glover; 777 Sgt.-Maj. 1 C. W. Goodchild; 223675 F./Sgt. R. R. L. Gosling; 2196 Ch. Mech. W. S. Goy; 687 F./Sgt. S. H. Graham; 88284 R.S.M. J. Graley; 36984 F./Sgt. E. W. Grant; 6105 Mbr. Miss M. U. Grant; 75517 A./Cpl. D. W. Gray; 207444 Sgt. Mech. F. Gray; 9134 A./F./Sgt. H. Gray; 11437 A./Sgt.-Maj. A. Green; 214431 A./Sgt. J. B. Green; 207809 F./Sgt. D. G. Greenaway; 208125 Sgt. Mech. G. W. Gregg; 187726 A./Sgt. J. N. Grey; 62387 A./Sgt. M. H. Gross; 1549 F./Sgt. C. Gunther.

9199 Cpl. H. Haddington; 379 6 F./Sgt. C. F. Haigh; 781 F./Sgt. L. R. J. Halcro; 233447 Sgt. F. Hales; 216158 Sgt. Clk. B. J. Hales; 63769 F./Sgt. T. Halford; 5028 F./Sgt. E. J. Hall; 26316 A./Cpl. J. Hall; 40081 A./Sgt. S. Halsall; 20792 Sgt.-Maj. 1 A. J. Ham; 37841 F./Sgt. J. Hamberger; 200846 F./Sgt. H. Hambleton; 3742 Sgt.-Maj. 2 W. E. Hamilton; 204661 Sgt. Mech. J. G. Hammett; 92058 Clk. 1 W. F. Hancock; 2117 Ch. Sec. Ldr. Miss F. Hannam; 68182 Sgt. J. Hannis; 114222 W.O. 2 E. A. Harbert; 6330 F./Sgt. E. Harrington; 8801 F./Sgt. A. H. Harris; 88448 Sgt. E. A. Harris; 205286 Sgt. F. E. Harris; 21048 L.A.C. A. Harrison; 4772 Mbr. Miss E. N. Harrison; 402562 Sgt. T. C. Harrison; 283 Ch. Mas. Mech. J. Hart; 275027 F./Sgt. J. H. Hartley; 244307 A.C. 2 J. F. Hartwell; 3548 Mas. Mech. F. W. Hawkes; 10741 Sgt. R. Hawkesford; 313117 Sgt. H. Hawkey; 13010 Ch. Sec. Ldr. Miss C. M. Haworth; 20610 F./Sgt. H. Hay; 102343 A.C. 1 J. T. Hayter; 211599 F./Sgt. T. H. Hayward; 6859 F./Sgt. H. H. Heales; 12048 Ch. Sec. Ldr. Miss I. A. Hearn; 11446 F./Sgt. E. C. Hearse; 187475 W.O. 2 C. Heath; 1177 A. Ch. Sec. Ldr. Miss D. A. Helsdon; 25012 W.O. 1 E. G. Henderson, M.C.; 18477 F./Sgt. T. H. Henderson; 24735 F./Clk. G. A. Hepworth; 67904 F./Clk. J. Herald; 4542 Sgt.-Maj. 2 F. W. Hester; 25617 L.A.C. A. S. Hickox; 28539 F./Sgt. R. G. Hicks; 658 Ch. Mas. Mech. H. Higgs; 68036 F./Sgt. C. R. Hill; 98849 Sgt.-Maj. 1 H. Hill; 9411 Ch. Sec. Ldr. Miss M. G. Hill; 2956 Sgt.-Maj. 1 W. Hill; 1274 Ch. Mas. Mech. R. V. Hinds; 150576 Cpl. H. S. Hipwell; 164281 Cpl. H. G. Hiscott; 206727 Cpl. A. L. Hobart; 52 Mas. Mech. C. A. Hobby; 213618 Sgt. Mech. H. S. Hodges; 21275 Mbr. Miss W. E. Hodder; 180 Sgt. A. F. J. Holder; 206180 Cpl. Clk. H. H. Hollick; 44369 Sgt. E. A. Holloway; 44695 Sgt. V. M. Holloway; 17570 Mbr. Miss A. S. Holmes; 9725 Sgt.-Maj. L. H. Holmes; 80075 L.A.C. W. B. Holmes; 194814 F./Sgt. J. Holt; 9556 Sgt.-Maj. 2 P. J. Holt; 9602 F./Sgt. H. Hopgood; 18385 F./Sgt. H. H. Horton; 409113 A./Sgt. F. Hough; 7591 C. Mech. C. E. Howard; 218450 F./Sgt. H. Howard; 314252 Sgt. W. Howard; 41514 A./Sgt. S. Howarth; 268879 Clk. 3 (A./Cpl.) D. P. Howell; 1734 Sgt.-Maj. 1 R. A. Howes; 9 Mbr. Miss M. O. Howie; 203978 L.A.C. C. Hoy; 129881 A./Sgt. W. Hughes; 75545 L.A.C. W. Humberston; 236330 Sgt. F. Humby. Can. 150078 Cpl. L. A. Hume; 232394 A.C. 1 J. Hunter; Can. 150891 A./Cpl. H. G. Hurd.

216655 Sgt. G. H. Ingram; 50407 A./Cpl. W. A. Innes; 72188 A./Cpl. R. H. Irvine; 28843 Sgt.-Maj. 1 F. J. Isaacs.

44484 Sgt. R. G. Jackson; 76442 Cpl. (A./Sgt.) T. W. Jackson; 186297 A./Sgt. R. G. Jameson; 10307 Ch. Mech. H. Jamieson; 148 Sgt.-Maj. H. Jenkins; 213031 A.M. 1 H. Jennings; 56994 Sgt.-Maj. 1 W. E. Jennings; 210882 Sgt.-Mech. J. R. C. Jerram; 87632 Sgt.-Maj. 1 E. Johnson; 401646 F./Sgt. F. V. Johnson; 203468 Ch. Mech. (E.) T. J. Johnson; 203391 Ch. Mech. E. Johnston; 458 F./Sgt. J. E. Jones; 67242 Sgt. Clk. J. E. Jones.

3370 F./Sgt. E. Kay; 3468 Ch. Sec. Ldr. Miss J. S. Keay; 18031 Sgt.-Maj. 1 H. M. Kebby; 134994 Pte. 1 G. G. Keeling; 101732 A.C. 1 H. H. Kellaway; 24155 Sgt.-Maj. 1 B. A. Kelly; Can. 71920 Sgt. D. M. Kelly; 119130 A.C. 1 F. Kelly (H.A.C.); 64847 Sgt. R. Kelly; 604 Member Miss F. E. L. Kemp; 87741 Sgt.-Maj. 1 G. Kendon; 55 F./Sgt. H. T. Kendrick; 61451 F. Sgt. C. R. Kent; Can. 73015 Sgt.-Maj. 1 F. W. Kerr; 2 7411 A./Cpl. I. V. Kerridge; 2741 F./Sgt. F. C. Kimber; 215951 Cpl. C. R. Kindell; 2826 Member Miss D. King; 18151 Sec. Ldr. Miss E. M. King; 209253 F./Sgt. G. L. Knowles; 83824 Cpl. (A./Sgt.) G. R. Knowles; 70955 A.M. 1 E. Kynch.

236959 Clk. 2 G. D. Lamb; 798 Sgt.-Maj. 1 F. Lamden; 206269 Sgt. Mech. A. E. Lancaster; 805595 A. F. Sgt. A. Lane; 37449 F./Sgt. J. Lazard; 9644 Member Miss B. Lea; 216956 Sgt. Clk. J. A. Leach; 49831 F./Sgt. W. Leach (R.A.); 2263 Ch. Sec. Ldr. Miss T. W. Leafe; 187476 Cpl. Clk. F. T. Lee; 8099 Sgt.-Maj. 1 H. Lee; 345037 F./Sgt. H. H. Lee; 205822 Ch. Mech. J. T. Lee; 217953 Cpl. W. G. Lee; 2654 Sgt. S. J. Leech; 33328 F./Sgt. R. W. Leeming; 5311 F./Sgt. A. J. Lennard; 218416 F./Sgt. G. Lethbridge; 313162 Sgt.-Maj. 1 W. Leveson; 200866 Ch. Mech. E. Lewis; 12249 F./Sgt. G. B. Lewis; 203033 Ch. Mech. H. Lewis; 210601 Cpl. Mech. P. H. Lewis; 8413 Sgt.-Maj. 2 W. E. Lewis; 231167 Clk. 2 G. H. Lidiard; 205933 A.M. 1 (W.T.) J. S. Lindsay; 24260 Sgt. Mech. R. Lingham; 18678 F./Sgt. F. Liqueurish; 2081 Sgt. A. C. Little; 88538 L.A.C. D. Little; 21338 Sgt.-Maj. 1 I. Lloyd; 37381 L.A.C. W. L. Lomax; 7693 Sgt. R. C. Long; 12451 Member Miss E. Longe; 25658 A.M. 1 J. Lonsdale; 18241 Member Miss A. Loosmore; 200262 Ch. Mech. B. J. Lovett.

231437 A.C. 1 D. J. McArthur; 98803 Sgt.-Maj. S. C. McCully; 206119 Sgt. J. McDonald; 10569 Ch. Sec. Ldr. Miss J. D. McGhie; Can. 70651 A./Sgt. A. A. McGibbon; 98384 Sgt. Clk. P. McGorum; 18101 A./Ch. Sec. Ldr. Miss E. V. McKenzie; 187170 Sgt.-Maj. 2 W. McKim; 205900 A./Sgt. A. C. McLeod; Can. 72936 Cpl. L. M. McLeod; Can. 71671 Cpl. C. W. McPherson; 200264 Ch. Mech. E. J. McQueen; 14392 Ch. Sec. Ldr. Miss

A. McTaggart; 12058 F./Sgt. W. D. Macallister; 24519 F./Clk. L. C. Machin; 205768 Cpl. (A./Sgt.) R. H. Mackenzie; 228939 L.A.C. J. M. Mackie; 69847 Sgt. M. Macmillan; 114310 A. C. 1 E. S. Maddocks; 99116 Cpl. (A./Sgt.) J. Magee; 21027 F./Clk. W. Magee; 30534 F./Sgt. H. Magnall; 22460 A./Mas. Clk. W. Manners; 98804 Sgt.-Maj. 1 E. F. Manning; 313171 Ch. Mech. T. F. Mantle; 19002 F./Sgt. H. E. Mantion; 28402 Sgt. W. G. Marriott; 222313 F./Sgt. C. A. Marshall; 2142 Member Miss A. A. Mason; 207609 Sgt. F. Mason; 17777 A./Sgt. G. N. Mathews; 2420 Ch. Sec. Ldr. Miss N. G. Maude; 70602 Ch. Mech. H. Maudsley; 5053 F./Sgt. H. N. May; 204995 Sgt. Mech. L. V. Mays; 581233 Cpl. A. J. Mead; 27062 Sgt.-Maj. 2 S. J. Meadows; 27873 Sgt.-Maj. 1 C. Mealing; 6697 Member Miss M. Mercer; 12242 Ch. Sec. Ldr. Miss E. A. Merrill; 50795 Sgt.-Clk. J. A. Messer; 1589 Ch. Mech. R. Milby; 8050 Sgt. Clk. R. Miller; 210980 Cpl. Clk. W. H. Millgate; 19033 Ch. Sec. Ldr. Mrs. A. B. Millierwood; 125782 Sgt. S. H. G. Millington; 56287 L.A.C. T. F. Millington; 61301 F./Sgt. A. J. Mills; 11880 F./Clk. J. E. Mills; 206199 Cpl.-Mech. F. B. Missen; 208287 Ch. Mech. P. D. Moller; 8261 Sgt.-Maj. 1 W. Molloy; 29123 Sgt. W. Montgomery; 42671 Sgt. G. H. Moody; 55878 A./Sgt.-Maj. D. Mooney; 10345 A./Cpl. H. T. Moore (7th Stores Depot); 14140 Sgt.-Maj. 1 W. R. Moores; 18998 F./Sgt. A. C. Morbey; 204575 Sgt. Mech. A. J. Morris; 7020 Sgt. B. D. Morris; 25817 F./Sgt. C. C. Morris; 36519 F./Sgt. E. J. Morris; 17070 F./Clk. R. Morthen; 70560 Mas. Mech. J. B. Mortimer; 227779 Sgt. A. Moss; 401578 Sgt. G. Moutl; 28445 F./Sgt. L. Mount; 148401 Sgt.-Maj. 1 C. F. Mountfield; 409165 A./Mas. Clk. W. Mullaney; 10713 Sgt.-Maj. 2 H. S. Mumford; 108155 A.C. 1 W. Murphy; 29067 A.M. 1 F. McB. Murphy; 61469 F./Sgt. L. J. Murray; 11587 F./Sgt. C. B. Murrell; 29816 A./Sgt. F. Musk.

88051 Sgt.-Maj. J. Newman; 10296 Sgt. A. H. R. Nias; 29110 F./Sgt. F. C. Nice; 10921 F./Sgt. J. Nicholls; 37938 F./Sgt. L. E. Nicholls; 129653 F./Sgt. F. Nightingill; 8341 Sgt.-Maj. 1 J. Nottingham.

5096 Ch. Mas. Mech. E. C. Oades; 227651 A./Sgt. G. Ogden; 2562 Ch. Mas. Mech. J. E. Onions; 57940 A./Sgt. A. H. Ormen; 71387 A.M. 1 A. G. Osborn; 186754 F./Sgt. A. A. Owen.

42281 Sgt. A. R. Padwick; 187677 S.M. 2 G. S. Palmer, D.S.M.; 113821 A.C. 1 J. Palmer; 16574 F./Sgt. F. D. Palser; 48066 Sgt. G. D. Parker; 126319 S.M. 2 H. C. Parker; 3297 Sgt. Mech. R. Parker; 20537 F./Sgt. P. Parkinson; 220023 Cpl. H. Parr; 7090 F./Sgt. C. Parrott; 60240 Cpl. (A./Sgt.) T. H. Parry; 203189 F./Sgt. J. W. Partridge; 72728 Cpl. (A./Sgt.) H. Pascall; 11296 F./Sgt. H. E. Patching; 79666 L.A.C. (A./Cpl.) C. Patrick; Can. 71494 Cpl. H. Patterson; 401026 F./Sgt. F. W. Pavey; 84651 Cpl. S. Pawsey; Can. 70631 F./Sgt. A. F. Paxton; 66271 F./Sgt. A. R. Pearce; 5377 F./Sgt. W. Pearman; 220177 Cpl. G. S. R. Pederick; 206818 Cpl. G. R. Peers; 200613 Ch. Mech. H. A. Percival; 210693 F./Sgt. A. J. Perry; 82263 F./Sgt. S. W. Pett; 3749 Sgt. H. F. H. Phelps; 205641 A./Sgt.-Maj. C. E. Phillips; 205841 S.M. C. E. Phillips; 724 F./Sgt. F. J. Phillips; 38532 F./Sgt. H. A. Phillips; 36046 F./Sgt. C. H. G. Philpot; 1203 Member Miss A. Pickering; 106864 A./S.M. S. E. Pike; 11597 S.M. 1 W. J. Pinder; 7655 Ch. Sec. Ldr. Miss B. Plowman; 8060 A./F./Sgt. S. Poole; 6409 Ch. Sec. Ldr. Miss F. M. Potter; 48455 F./Sgt. C. J. Pottier; 8995 F./Sgt. C. Powling; 202017 Sgt. Clk. W. Pratt; 185599 F./Clk. J. E. Prax; 2143 Staff Ldr. Miss A. Price; 43987 F./Clk. G. A. Pritchard; 130029 Cpl. Clk. H. E. Pritchard; 45129 Sgt. J. F. Proctor; 2672 F./Sgt. C. A. Prowse; 2417 F./Sgt. (A./S.M.) C. Pryor; 207115 Sgt. Mech. G. M. Pullen.

18580 F./Sgt. J. M. Ralston; 54757 A.M. 1 (A./Cpl.) C. Ramsden; 6250 Sgt. S. Ranby; 166039 S.M. 2 L. A. Rancome; 16701 Sgt. A. J. Rands; 22239 S.M. 2 V. B. Ranford; 8662 Member Miss S. M. Rangel; 146090 A.C. 1 (A./Cpl.) F. Ransome; 4698 F./Clk. W. F. Ray; 2456 S.M. G. H. Raynor; 1482 F./Sgt. L. M. Reader; 42029 Sgt. A. E. Reed; 12500 Ch. Sec. Ldr. Miss E. Reed; 2289 S.M. T. Reid; 227552 Cpl. Mech. E. Renaut; 20547 F./Sgt. W. Rennie; 217016 Sgt. Clk. M. G. Reynolds; 7762 F./Sgt. W. J. Richards; 401665 Ch. Mech. A. J. Richardson; 46438 R.S.M. F. Richardson; 32815 Sgt. J. Richardson; 72102 A./Cpl. A. Riddell; 230998 Clk. 1 R. Ridley; 405740 A.M. 1 R. Ripley; 200079 Ch. Mech. (E.) R. W. Ripley; 64549 A./Sgt. H. Roberts; 187396 F./Clk. J. Robertson; 123421 Cpl. G. F. Robey; 102 S.M. A. C. Robins; 150598 A./Cpl. L. Roche; 68415 A./Sgt. R. Roser; 5304 S.M. M. B. Ross; 136068 A.C. 2 P. C. Ross; 204445 Sgt. F. A. Rossier; 8267 Ch. Sec. Ldr. Miss E. L. Rouncefield; 204449 Sgt. B. A. Rowe; 10753 Member Miss M. D. Rowe; 230 F./Sgt. O. R. Rowe; 1356 Sgt. (A./F./Sgt.) S. A. J. Rowland; 314358 Sgt. J. L. Rowlinson; 4618 Member Miss A. L. Ruler; 18698 F./Sgt. A. J. Russell; 37140 F./Sgt. Clk. J. H. Ryder; R.N. 224527 Ch. Mech. (R./L.) J. Rye.

3032 Ch. Sec. Ldr. Miss M. Sainsbury; 1943 Ch. Sec. Ldr. Miss M. Sales; 41946 A./Sgt. H. C. Sandford; 98123 A./Sgt. G. R. Sandiford; 6653 F./Sgt. W. R. Saunders; 17780 Ch. Sec. Ldr. Miss E. Saunders-Jones; 3303 Sgt. J. R. Scott; 138233 A.C. 2 W. J. Scott; 34875 Sgt. F. C. Scratchley; 201741 Ch. Mech. (E.) N. A. Scull; 9655 Sgt. H. E. Searle; 217765 F./Sgt. M. R. Selby; 13666 Sgt. Mech. B. Sellers; 224041 Sgt. Mech. F. H. D. Sewell; 12163 S.M. R. W. Sharp; 10452 F./Sgt. F. B. Shaw; 207134 Cpl. Clk. J. E. Shaw; 204142 F./Sgt. A. W. Shearman; 234878 A.M. 1 L. A. Shepperson; 11382 Sgt. H. J. Sibun; 301555 Cpl. A. J. Sims; 3061 Sec. Ldr. Miss A. D. Sinclair; 1916 Ch. Sec. Ldr. Miss M. Skelton; 401978 F./Clk. W. T. E. Skelton; 11082 D./Sgt. G. Slater; 217746 A.C. 1 J. T. Slater; 13420 F./Clk. R. P. Slaughter; 35265 Sgt. G. W. Smalles; 185034 A./S.M. C. C. Smith; 4873 S.M. 1 C. H. Smith; 56566 Sgt. G. H. Smith; 10390 L.A.C. (A./Cpl.) L. D. Smith; 143429 A.M. 3 T. Smith; 202690 Sgt.-Mech. W. J. Smith; 202618 Sgt.-Mech. J. R. Smurthwaite; 13743 F./Sgt. A. C. Snowden; 21 A./Ch. Sec. Ldr. Miss W. R. Sowter; 10274 Cpl. J. Spencer; 224387 F./Sgt. R. W. Squires; 9310 A./Sgt. A. C. Squirrel; 1995 Ch. Mech. R. A. Stacey; 2242 S.M. 1 (Tec.) J. Stallard; 209141 Sgt.-Mech. A. A. Stanbridge; 19205 Sgt. F. Starkey; 79229 Sgt. H. Stebbings; 14117 F./Sgt. H. Stephenson; 206716 Sgt.-Mech. A. Stevens; 75405 L.A.C. F. D. Stewart; 223141 A./Cpl. Mech. L. C. Stewart; 17318 Ch. Mech. W. F. Stewart; 29209 Ch. Mech. W. H. Storri; 138 Mas. Mech. R. Street; 13974 F./Sgt. C. W. J. Streetly; 214871 Sgt. P. E. Stubbs; 40841 A./Sgt. J. C. Suter; 293339 A./Clk. 2 W. H. Swan; 105283 L.A.C. J. V. Sykes; 27204 Sgt. F. Sylvester; 6515 F./Sgt. J. W. Sylvester; 18200 F./Sgt. R. Syme; 6198 S.M. 1 F. W. Symons.

93483 F./Sgt. W. H. Tarrant; 8864 A.M. 1 H. Tatton; 300237 A./Sgt. A. J. Taylor; 313274 Ch. Mech. H. Taylor; 313928 Cpl. Mech. H. Taylor; 8949 Ch. Mech. H. R. K. Taylor; 10063 Mbr. Miss L. A. Taylor; 187229 F./Clk. L. R. Taylor; 48741 Sgt.-Maj. R. A. Taylor; 11025 F./Sgt. G. Templeman; 17676 Sgt.-Maj./H. Theobald; 221849 F./Sgt. D. R. Thom; 9244 F./Clk. G. E. Thomas; J.2207 Ch. Mech. (R./L.) H. Thomas; 209142 Ch. Mech. R. H. Thomas; 5444 F./Sgt. W. Thomason, M.M.; 70611 F./Clk. A. J. Thompson; 206239 F./Sgt. A. S. Thompson; 401974 L.A.C. (A./Cpl.) C. Thompson; 187172 A./Sgt. T. P. Thompson; 1418 F./Sgt. W. Thompson; 21055 F./Clk. J. A. Thomson; 218306 Sgt. Mech. H. G. Tiller; 306 Ch. Mas. Mech. D. G. Tindale; 8290 Mbr. Miss E. E. Titterton; 314070 C.P.O. C. Todd; 205711 Cpl. E. Tonkin; 225546 Cpl. C. H. Tonks; 16063 A./Ch. Mech. W. J. Toozes; 205707 Cpl. F. W. Torlot; 23344 Ch. Sec. Ldr. Miss F. A. Travis; 42894 F./Clk. P. V. Tree; 6656 Ch. Sec. Ldr. Miss L. M. Trusler; 302778 R.S.M. F. Truss; 1124 Ch. Sec. Ldr. Miss K. Tubb; 201547 F./Sgt. E. H. Tunnell; 112167 L.A.C. J. M. Turnbull; 17474 Sgt.-Maj. 2 W. G. Turner; 207068 Sgt. Mech. W. C. Turpin; 206004 Sgt. E. W. P. Tyrrell.

24954 Sgt. O. A. Usher.

35573 F./Sgt. J. Vale; 10012 Mbr. Miss N. Van Loock; 12264 F./Clk. F.

Venner; 220393 Cpl. A. H. Vickers; 8136 A./Spt. Ldr. Miss H. Vinogradoff.

200582 Ch. Mech. W. Wadlow; 313282 A./F./Sgt. J. Wailling; 407677 F./Sgt. F. Waite; 1212 Sgt.-Maj. 1 H. J. Wakeling; Can. 73645 Cpl. C. V. Wakely; 1714 Sgt.-Maj. C. G. Walker; 409837 Ch. Mech. D. J. Walker; 4322 F./Sgt. F. S. Walker; 56011 Sgt.-Mech. H. Walker; 214613 Cpl. S. Walker; 37624 F./Sgt. E. J. Walsh; 78674 Sgt.-Maj. 1 J. Wannop; S.R. 18 Sgt.-Maj. 1 H. W. Warboys; 2169 Mbr. Miss F. E. Ward; 8824 Mbr. Miss L. M. T. Ward; 25760 A./F./Sgt. A. A. Warner; 314425 F./Sgt. F. W. H. Warren; 2157 T./Sgt.-Maj. E. C. Watson; 26286 Sgt. F. B. Watson; 65835 Sgt.-Maj. 1 C. E. Watts; 29192 Sgt. G. E. Watts; 57648 Sgt. W. E. Wears; 58717 F./Sgt. B. S. Webb; 408696 F./Sgt. A. P. Webley; 3095 Sgt. Mech. A. Webster; 2436 Sgt.-Maj. 2 W. Webster; 9525 Mbr. Miss M. Weeks; 11929 Cpl. E. Wenband; 25142 F./Sgt. F. L. Wheeler; 37586 Ch. Mech. W. Whitaker; 1946 Ch. Sec. Ldr. Mrs. A. White; 212750 Sgt. D. D. White; 123534 L.A.C. L. S. Whitehead; 202542 F./Sgt. F. H. Whiteley; 230687 A.C. 1 A. W. Whiting; 21210 Clk. 1 L. A. Whitty; 203768 Cpl. G. F. Wicks; 11621 Sgt.-Maj. L. M. Wiertz; 1913 Ch. Sec. Ldr. Miss B. Williams; 6234 T./Sgt.-Maj. H. A. Williams; 70714 A.M. 1 H. C. Williams; 228763 Sgt. Clk. J. W. Williams; 51092 F./Sgt. R. J. Williams; 75269 Sgt. W. E. Williams; 8707 F./Sgt. S. Williamson; 19112 Sgt.-Maj. F. Willis; 313297 F./Sgt. F. G. Wilmot; 18810 Sgt. Mech. E. Wilmott; 14279 Ch. Mech. J. A. Wilson; 1437 L.A.C. R. W. Wilson; 47157 A.M. 1 A. A. Wiltshire; 226532 Sgt. H. Winchester; 1098 Sgt.-Maj. 1 S. V. Winney; 12236 Ch. Sec. Ldr. Miss E. A. Winspear; 210392 A./Clk. 1 T. R. Winter; 9779 Sgt.-Maj. 1 E. A. Withers; 232830 A.M. 2 A. T. Wood; 14758 F./Sgt. E. Wood; 7296 Sgt.-Maj. 1 H. Wood; 7823 Sgt. S. A. J. Wood; 31 Snr. Ldr. Mrs. V. N. M. Wood; 36738 Sgt.-Maj. A. W. Woodgate; 263679 Cpl. H. Woodhead; 2878 Ch. Sec. Ldr. Miss C. I. Wooding; 5759 Sgt. C. Woodrow; 112745 L.A.C. G. F. Woolaston; 1744 Ch. Sec. Ldr. Miss R. Woolfe; 29076 Sgt.-Maj. 1 R. N. H. Workman; 201765 Sgt. J. Wrenn; 13057 Sgt.-Maj. 1 C. H. Wright; 4374 Ch. Sec. Ldr. D. M. Wright; 8472 A./Sgt.-Maj. 2 F. N. Wycherley.

214401 Sgt. T. E. Yates; 6735 F./Sgt. S. Young.

Civilian Staff

The following members of the civilian staff employed by, or serving in connection with, the Air Ministry, have been brought to the notice of the Secretary of State in respect of valuable services rendered in connection with the War:—

Mr. H. H. Adams (Thornton Heath); Mr. W. E. Boyce (Paddington); Mr. H. H. Chapman (West Croydon); Dr. W. C. Collins, M.D. (Chester); Mr. J. Cooke (Upper Holloway); Mr. U. Cooke (Biggin Hill); Mr. F. J. T. Cooper (Balham); Mr. V. Cozens (Newlyn); Mr. C. W. Crosbie (Bedford); Mr. H. C. Dwelly (Stoke Newington); the Rev. G. Frazier-Upton (A./Chaplain) (Coventry); Mr. J. S. Grosvenor (Kingston-on-Thames); Mr. V. C. Mountfort (Streatham Hill); Mr. W. R. Parker (Lewisham); Mr. R. C. Pearce (Battersea, S.W.); Mr. F. S. Rae (Battersea Park); Mr. G. R. Richardson (Surrey); Mr. H. Russell (Upper Walthamstow); the Rev. W. G. Spurrell, M.A. (A./Chaplain) (Pembroke); Mr. S. Stephens (Cattewater); Mr. C. E. Stevens (Uxbridge); Mr. H. M. Stretch (Romanlea, Berks); Dr. H. M. Thomas, L.R.C.P., M.D. (Fishguard); Mr. W. Williams (Streatham Hill).

Mrs. D. M. Alban (Blackheath); Misses F. A. Anscombe (West Kensington); J. Armstrong (Palmer's Green, N.); Mrs. L. Aston (Uxbridge); Misses E. H. Attwood (Canada); K. Barry (Thornton Heath); Mrs. Bed-

Queenstown as an Aerial Port of Call

CONSIDERATION was given by the Queenstown Urban District Council on August 29 to a proposal of the Great Northern Aerial Syndicate, Ltd., of Liverpool, to establish an aerial base near Queenstown, to be used for the purpose of discharging American passengers travelling from the United States to Ireland by airships, capable of carrying 150 persons in addition to the crew.

It was stated that the syndicate had practically decided to fix their base at Queenstown for the Atlantic services, and that a service of smaller airships to carry 50 persons will be utilised to distribute the American passengers between Queenstown, Dublin, Liverpool, Manchester, York, Hull, Norway and Denmark.

The Council promised to help the project by every means in its power, and expressed satisfaction at Queenstown being chosen as a base for such important aerial services.

New Head of the N.P.L.

It is announced that the Lord President of the Council has appointed Professor Joseph Ernest Petavel, D.Sc., F.R.S., M.I.Mech.E., etc., to be Director of the National Physical Laboratory in succession to Sir Richard Glazebrook, C.B., F.R.S., who retires on reaching the age limit on September 18 next.

Professor Petavel is Professor of Engineering and Director of the Whitworth Laboratory in the University of Manchester. He is a member of the Advisory Committee for Aeronautics of the Air Ministry. He was educated at University College, London, and undertook scientific research at the Royal Institution and at the Davy Faraday Laboratory until 1898. He was elected John Harling Fellow of the Owens College, Manchester, in 1900.

A Round the World Trip

MR. CHARLES J. GLIDDEN, who many years ago presented a trophy to the American Automobile Club, the competitions for which undoubtedly did a great deal to encourage motoring in the United States, and who has twice toured round the world by motor car, proposes to make a tour of the globe by aeroplane. He intends to cover in two years all points reached in his automobile tour, which required eight years. He will visit such extreme points as the Arctic circle, Sweden, and the most southern part of New Zealand.

ford (Barnes); Misses A. Bennett (Wanstead); E. D. Bircumshaw (Wimbledon); A. Boisseau (Canada); Mrs. C. E. Bond (Leyton, Essex); Mrs. A. R. Boughton (Canada); Misses F. E. Branchflower (Leytonstone); B. J. Burch (Salisbury, Wilts); O. Callender (Surrey); O. E. Cardew (East Dulwich); B. R. Chapman (Hyde Park, W.); N. W. A. Chard (Crawley, Sussex); E. V. Cheney (East Ham); G. Clarke (Kensington, W. 8); D. A. E. Cole (Portman Square, W.); I. Collins (Canada); G. M. Dellagana (Brondesbury Park); D. E. Dunn (Bloomsbury, W.C.); M. Dwyer (Canada); Mrs. M. Elderton (Canada); Miss K. Farrer (Canada); Mrs. G. G. Finn (Barnes, S.W.); Misses I. W. Fitzwilliam (Jermyn Street, W.); K. F. Forsdyke (Broomwood Road, S.W.); E. Francis (Brompton Road, S.W.); B. George (Canada); B. Gibbon (Ripon, Yorks); E. M. Gibbons (Sutton, Surrey); E. M. Glendenning (Hampstead, N.W.); G. M. Godsal (St. Mary's Mansions, W.); Mrs. F. M. Gooch (East Ham); Mrs. N. Gordon (Canada); Mrs. E. F. Green (Ealing); Mrs. D. Greenall (Reading); Misses L. Groom (Wallington); D. Hale (S. Lambeth); M. Hannant (Canada); H. Harding (Highbury, N.); E. Harker (Canada); Lady Harroway (Grosvenor Place, W.); Misses H. I. Hartley (W. Hampstead); F. L. Hayward (Surrey); L. A. Heritage (Streatham); Mrs. E. G. Kingston (Brompton Road, S.W.); Mrs. M. M. Hodgson (Streatham); Mrs. E. Hogan (Canada); Miss G. M. Hood (Kingston-on-Thames); Mrs. F. C. Hollway (61, Lexham Gardens, W.); Misses B. E. M. Hubbard (Naughton, Suffolk); E. Hughes (Chelsea, S.W. 3); A. B. Hyam (New Cross); M. I'Anson (Walthamstow); A. L. Jarvis (Canada); Mrs. M. Johnson (Canada); Misses N. M. Jones (Golder's Green); G. J. Keogh (Forest Gate); Mrs. M. Kimpton (Canada); Mrs. A. E. King (Shepherd's Bush); Misses E. E. King (Hampstead, N.W.); E. M. King (Canada); G. E. Knight (Gloucester Road, W. 1).

Misses C. Lamb (West Hampstead); D. C. Lawman (Upper Tooting, S.W.); L. E. Lawrence (Westminster); C. McChesney (Ealing); E. J. McClellan (Canada); D. McCoy (Stamford Hill); E. Macdonald (Canada); L. G. McGuffin (Canada); P. MacKinnon (Grays, Essex); Mrs. T. McRae (Canada); Misses C. Macklin (East Ham); M. Maloney (Canada); E. Marshall (Canada); E. F. M. Marwood (Wandsworth); M. A. Matthew (Westminster); H. May (Canada); M. L. Meehan (Canada); Mrs. A. M. Megaw (Cleveland Gardens, W.); Misses K. Melville (Canada); D. I. Millard (Hornsey); Matron Miss V. G. Milman (Blandford); Mrs. L. E. Milroy (Hanover Square, W.); Mrs. M. G. Mogridge (Wimbledon Park); Mrs. G. Montague (Brixton Hill); Misses L. M. H. Nash (Hampstead); B. M. Nelson (Canada); Mrs. G. Norman (Bayswater, W.); Misses H. E. Norman (London, E.); M. Nott-Bower (Richmond); A. O'Brien (Canada); O. M. Ormsby (Canada); P. W. Osborne (Streatham); D. Parry (Finsbury); Mrs. L. M. Parsons (Canada); Mrs. G. E. Pearce (Forest Gate, Essex); Mrs. C. Perry (Marylebone, N.W. 1); Misses G. E. Rafter (Canada); A. Ratcliffe (Canada); Mrs. D. W. Read (Streatham); Misses M. Ryder (Tooting, S.W.); G. L. Roberts (Welwyn, Herts); E. B. Sandford (Paddington); A. Sandys (Yatesbury); N. Schofield (S. Croydon); D. F. Snow (Canada); Mrs. J. Spencer (Mortington Crescent, N.W.); Mrs. L. M. Stacey (N. Kensington); Miss E. Steele (Canada); Mrs. J. I. Strachan (Muswell Hill, N.); Misses K. M. Tackaberry (Canada); A. Tandy (Sheffield); V. R. Thompson (Dublin); Mrs. M. A. Thierry (Oxford Gardens, W.); Misses D. Threlkeld (Canada); V. S. Torckler (E. Molesey); C. W. Turner (London, E. 17); Mrs. A. M. Upton (Myatts Park, S.E.); Miss I. Valler (Canada); Mrs. M. Van Dyke (Canada); Miss C. M. Vincent (Stoke Newington); Mrs. L. A. Vine (Hampstead); Mrs. G. Webster (Canada); Mrs. M. Weiss (Canada); Misses C. A. J. West (Streatham, S.W.); L. L. White (Highbury, N.); Mrs. A. Whitecross (Wimbledon Park); Misses D. V. Wiifin (Southfields, S.W.); H. M. F. Windie (Chelsea); H. Woodruff (Canada).

Landing on the Jungfrau

RECENTLY several attempts were made to land on the Jungfrau, in the Bernese Alps, 13,670 ft. high. On August 17 Lieut. Ackermann, with Maj. Isler as passenger, started from Thun, and after circling the Aletschhorn and the Eggishorn, tried to reach a landing-ground which had been prepared on the Jungfrauoch. Adverse currents, however, upset the pilot's calculations, and the machine nose-dived into the snow on the side of a crevasse. The pilot and passenger were uninjured, but the machine was slightly damaged. A further attempt was made two days later, but with no better results. On August 22 Lieut. Pillichody tried, but the machine was driven out of its course by the wind and crashed on the snow.

Wrecking the Zeppelins.

THE story sent from Berlin to America last week by Karl Wiegand as to a young naval officer going round various air stations and cutting the cables by which a dozen Zeppelins were suspended in their sheds was a little suspect owing to its circumstantial details. The British Foreign Office and War Office appear to have heard nothing of it but from a statement authorised by the German Naval Office it appears to be a new version of a old incident. According to this statement some of the German airships which were to be handed to the Entente were dismantled during the last weeks of the war as they were no longer of any use for warlike purposes. Seven others were destroyed by their own crews about the time of the sinking of the warships at Scapa Flow, though nothing was published in the Press at the time.

German Aeroplanes Sold to Danish Firm

FROM a message from Copenhagen it appears that the Commission sent by the Entente Legations to inspect some 90 German aeroplanes bought by a Copenhagen firm, and held up by the Danish Customs authorities at Vandrup, has found that all the aeroplanes are new and bear German military marks.

Pending some more satisfactory explanation it looks as though the machines have been sent to Denmark in flat evasion of Article 202 of the Peace Treaty, which provides for the handing over to the Allies of all military and naval aeronautical material.



AIRISMS FROM THE FOUR WINDS.

BEFORE this week's issue of *FLIGHT* is on sale, the eliminating trial for the trio to represent Great Britain in the Schneider Cup seaplane race at Bournemouth next Wednesday, will have taken place, this preliminary having been carried through on Wednesday this week.

As to the contest itself, under the organisation of the Royal Aero Club, this is down to start on a circuit of 20 miles in Bournemouth Bay on September 10, at 2.30 p.m., for a distance of 200 nautical miles.

THE Royal Aero Club has obtained the loan of the T.S.Y. *Ombra* (350 tons) to accommodate the members on the day of the race. This yacht will be anchored off Bournemouth Pier, and will be the official starting and finishing point, the competitors passing ten times during the race. Motor launches will convey members from Bournemouth Pier to the yacht between 12 noon and 2 p.m. Members should make application without delay for tickets (price £2 each) including luncheon and tea on board. An enclosure for members has also been reserved at the Pier-head, for which tickets may be obtained on application.

THE order of the Air Ministry this week that the new titles for R.A.F. officers are applicable to all officers, whether permanent or temporary, attached to or seconded for service with the R.A.F. is a wise departure. Confusion must otherwise have arisen continually.

"A SET of yesterday (Monday) morning's Paris newspapers brought by air express was delivered to *The Daily Telegraph* office early yesterday evening. Almost simultaneously we received the Paris papers of Friday last, which had come by the ordinary railway route. Those of Saturday and Sunday have not yet arrived."

Comment would be superfluous upon the above paragraph published in the *Daily Telegraph* on Tuesday last, September 2!

Mr. HOLT THOMAS is once more the far-seeing pioneer, with the pluck for practical application, in aviation. Nothing could be more convincing than the regularity of the Paris-London Service to schedule time as carried out by his organisation. It has been modestly stated that the weather has not been ideal! As a fact the elements during part of the week seemed as if they had had a mandate to do in at the outset all attempts at commercial flying. But the result must have been disappointing to the clerk of the weather, and already an excellent tone of sympathy is observable in business circles, widely different to that predicted by the ghouls of pessimism. Why even the postal authorities are now nibbling at supporting the scheme, so that in

10 or 15 years it may be possible to send letters officially by air-post. Many may not know it, but quite a lot of the mails are conveyed by motor vehicles now and even for some years back. But in the early and late early days of motorism, each bureaucrat refused to countenance the beastly thing and, moreover, unofficially, swore by bell and book they never would. But they *have*—when they were compelled to. And so, no doubt, with air-mails.

In another direction the speed of the 'plane has quite possibilities of playing a part.

"When the new Cross-Channel Air Service is permitted to carry letters," writes a City Editor, "it may become an important adjunct to the modified form of arbitrage business that has been recommended with the removal of the restriction on the import of securities."

"So long as all business is on a cash basis rapid delivery of securities is an important factor in stock and share business. When speculative dealing was permissible actual delivery of the securities was not an essential part of business on the Stock Exchange. Now it is, and the quicker they can be transported from one place to another the easier it is to deal."

Only those who understand what arbitrage business means can appreciate what important results may accrue in this direction alone.

CANADA also presents a practical application of the aeroplane to the peculiar requirements of northern latitudes. From a recent exploration expedition by means of aeroplanes to the hinterland of Labrador, a correspondent of the *Daily Telegraph* writes, the discovery of vast resources of pulp-woodlands resulted. The locations were hitherto believed to be of little value. The expedition was undertaken by the Newfoundland Government along the coastlands still under the jurisdiction of the island. The aeroplanes made many flights extending for 400 miles inland. A series of photographs and maps of the unexplored districts has been obtained. It is expected the results of the exploration will lead to the exploitation of large areas of pulp in the forestland by the coast which is now extremely valuable.

QUITE in a different direction, the unique outlook obtained from an aeroplane, has proved of remarkable value in quite an unexpected way. In one of the papers, which are to be read before the British Association Meeting, opening at Bournemouth, is one in which it is set out how the excellence of air photography has resulted in the discovery of the sites of lost Asiatic cities for which archaeologists have been vainly digging and searching for generations.

Some R.A.F. Impressions



Lt.-Col. Holt, D.S.O., formerly commanding 9th Wing, R.A.F.

The slight difference of colour over a buried wall can make the outline of a town absolutely distinct from the air, though quite invisible on the ground.

WHETHER the conquest of the air will ever change the natural instincts for adventurous mountain climbing,

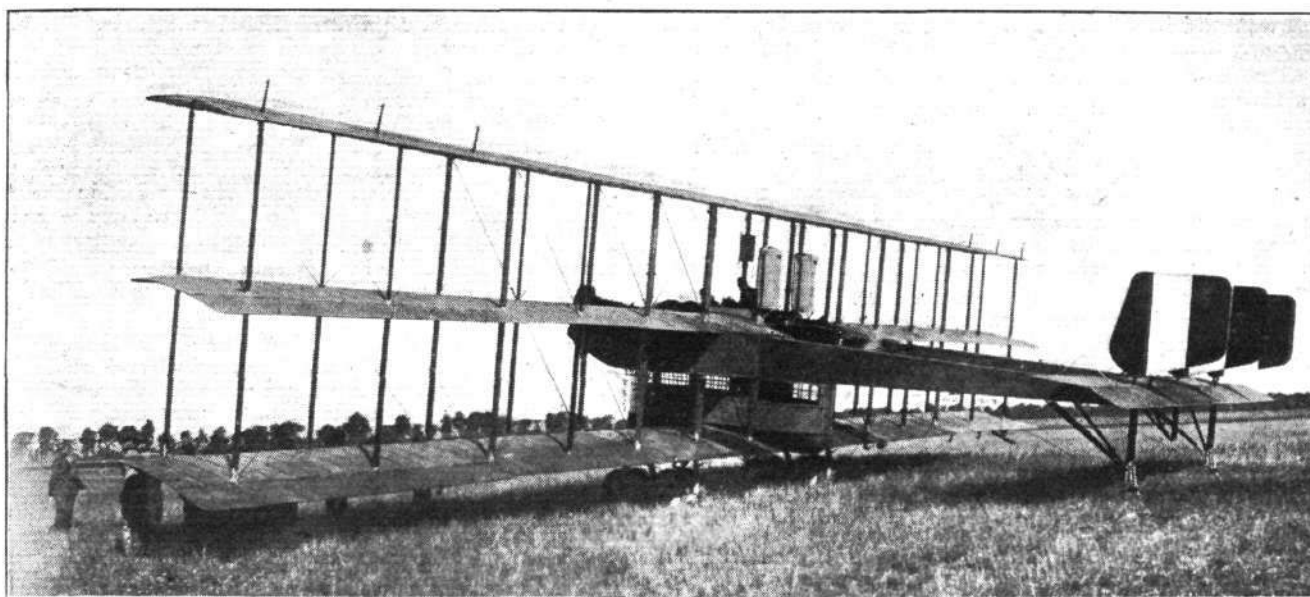
of the least possible amount of energy. To these the obtaining a view of the world below from the summits of the Alps, and other elevations of the world, by the help of the aeroplane, in overcoming the element of space, will appeal with no uncertain appeal. Therefore, if adequately safe landing points for 'planes can be ensured, it should be a paying proposition



born in so many thousands of our noble selves, man and woman, is more than doubtful. This side of getting the better of nature's obstacles to our advance is a phase of character which will always have its devotees. On the other hand, there is without question a vast majority of the so-called "traveller" who is simply out to see each and everything out of the way with the least trouble and with the expenditure

to convey tourists by this means to the upper regions of Switzerland.

In this connection, according to the *Daily Chronicle* special correspondent at Zermatt, there is every prospect of early developments. The day is no longer distant, he says, when aspiring tourists will be comfortably deposited by an aero-



A CAPRONI PASSENGER TRIPLANE: This machine appears to be a peace-time development of the type CA 4 described in "Flight" of June 19, 1919. The two tractor engines are mounted in the nose of the twin fuselages, while the pusher engine is placed high in the stern of the central nacelle.

plane on the summit of the Matterhorn, which Edward Whymper conquered 55 years ago, after seven seasons of strenuous efforts, and at the price of the lives of three active young Englishmen, and one of the boldest guides of the period. Indeed, recent exploits of Swiss aviators, which I have witnessed there, the correspondent continues, render it not improbable that "flying up" the Matterhorn and other great Alpine peaks, or at least close around their summits, may soon become a popular holiday sport in Switzerland. What is probably the most elevated flying field in Europe has just been completed at Montana, a frequented summer and winter resort in the Canton of the Valais, at a height of about 5,000 ft. above the sea level. This first of Alpine flying fields was inaugurated a few days ago by a number of sensational flights, in the course of which the Swiss airman Rhyner circled around the summits of the Matterhorn and the Weisshorn for several hours.

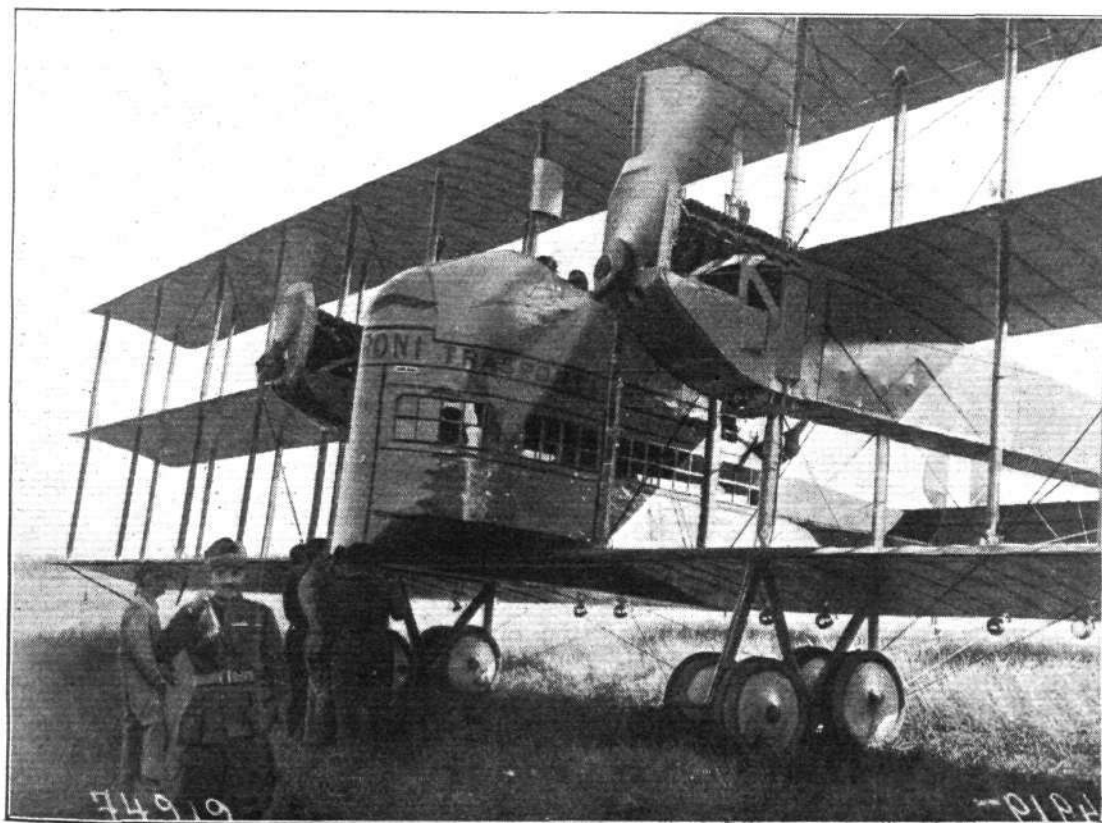
THESE feats will be repeated regularly in fine weather, and hotel guests who are unequal to the exertions of difficult

climbing, or deem the dangers of flying less than those of mountaineering, will be able to book seats as passengers, and skim lightly over the crags and precipices which cost the ardent Alpinist many hours of high physical tension to overcome. Alpine aviation thus bids fair to become a recognised institution in Switzerland, by which all those interested in the development of the "tourist" industry hope to attract new swarms of pleasure seekers to the "playground of Europe."

Two Swiss military aviators, Major Isler and Lieut. Ackermann, after flying around the summit of the Jungfrau in the Bernese Oberland, last month, landed in the midst of the glaciers of the Jungfraujoch.

A suitable landing place had been levelled on the glacier, but the course of their machine was deflected by a sudden gust of wind, and it stopped on the verge of a gaping crevasse, into which the airmen were very nearly precipitated—a mountain accident of an entirely novel character.

This incident suffices to show that Alpine aviation is not without its special dangers. Swift and treacherous air



A Caproni Triplane.—A close-up view of the cabin. This extends from the bottom to the middle plane, and the passengers are enclosed, while the pilot is situated in a smaller cockpit on top of the cabin.

currents also swirl about the great Alpine-peaks even in the finest weather, and threaten to hurl airmen to destruction upon ragged ridges and rock faces. Only by experience will these difficulties gradually be vanquished.

It is stated in the Swiss newspapers that an air passenger service is being organised along the line London-Lausanne-Montana-Milan. This would mean flying over the Simplon Pass at a great height, and certainly would afford the air traveller marvellous views of mountain scenery.

Mountaineers naturally do not wax enthusiastic over the possibilities of Alpine aviation, which they are inclined to regard as a further desecration of the Alps by the vulgar crowd. Mountain guides, in centres such as Zermatt and Grindelwald, are more melancholy still, and apprehend serious competition in their profession from their new sport.

SIR MARTIN CONWAY, on the other hand, is in no way disturbed over these prospects of invasion of his happy hunting ground. In an interview Sir Martin regards it all as "chitter." "There is not," he says, "a single peak of any importance in the Alps on which anyone could land from an aeroplane by any possibility whatever. They can fly about the mountains, of course, as they can fly about London, but between Alpine climbing and flying there is no relation whatever, and I do not think that aeroplanes will ever be there in such numbers as to make any marked difference to the existing calm and beauty of the scene. I doubt, indeed, whether they will be seen around the Alps as often as they are in London.

"Montana, where the most elevated flying ground in Europe is reported to be completed, is all grass. And there are undoubtedly grassy meadows here and there at high altitudes of a sufficient size to land upon, though they are rather lumpy. But I doubt whether there are more than

half-a-dozen snowy plateaus, if as many, on which an aeroplane could land, and even from these it might be difficult to get off again.

"The only possibility of using aeroplanes for mountaineering that I can conceive will be in the Himalayas. In those mountains there are large snowfields at high altitudes on which an aeroplane might land, thus enabling the mountaineer to get over the difficulties of the valleys in the lower regions, and to begin to climb the great heights from suitable altitudes. The difficulty in the Himalayas is to get to the bottom of your mountain. No one, for instance, has ever got within 30 or 40 miles of the base of Mount Everest, and with the exception of two or three minor peaks, no mountain in Asia has been climbed at all.

"In the Alps, of course, the conditions are entirely different," Sir Martin continues, "they are on a much smaller scale. If it should ever become practicable to make an aeroplane that will hover like a bird and slowly settle down on a given spot, maintaining its balance whilst there, and be able to start again without running, the relation of mountaineering to flying in the Alps would be different. Under such conditions of perfection an aeroplane might be able to alight on some of the highest peaks, but even then one has to remember that many a peak is so sharp that you have to cut off the top before you can even stand on it.

"As to flying about the Alps, it may be useful for map makers, and there may be for tourists a certain picturesqueness in looking down upon the glaciers—at any rate, it will give people a new view of the scene—but those who look down upon the mountains from a height above them will lose the wonder and beauty of the Alps. You want, not to look down upon mountains, but to look up at them from below."

ALPINE excursions *via* the air will come, all the same, we fancy.

FLYING-BOATS FOR SCANDINAVIA

SOME observations on the lessons of the recent flight of the F 5 flying-boat, N 4044, from Felixstowe round Scandinavia, have been issued by the Air Ministry. The flight—during which 2,450 sea miles were covered in a total flying time of 40 hrs. 40 mins.—was made entirely as a demonstration of the commercial uses of flying-boats, and is noteworthy because no mishap occurred of any kind during the 27 days the craft was away. The Rolls-Royce engines, of the low-compression Eagle VIII type, worked magnificently throughout. This type demonstrated its reliability in the Trans-Atlantic flight competition, and has now shown its durability in conditions of protracted exposure.

A very good impression was created in each of the Scandinavian capital towns visited, and it is hoped valuable results will accrue to the British aircraft industry in opening up what is, perhaps, the best market in the world for water-going aircraft. As sea-faring people, the Scandinavians were quick to see the merits of flying-boats. Very few land aerodromes exist in these countries, and the land lying between them is difficult and generally dangerous for alighting. On the other hand, sheltered stretches of water are found everywhere, and there are numerous natural "Seaplane Harbours."

Practically the whole of Norway is navigable by seaplanes making use of the fiords, and in Denmark all the large towns are approachable by water; in Sweden a natural seaplane highway extends right across the country, formed by the two large lakes, Vättern and Vänern, the Gotha Canal, and countless small lagoons and lakelets.

It was generally found that the feeling in Norway, Denmark and Sweden towards British aviation is favourable, but it cannot be too strongly emphasised that the near proximity of these countries, especially Sweden to Germany, renders them particularly exposed to German influences. In Sweden, the interests of British aviation are being stoutly upheld by two British demobilised flying officers, who are giving exhibition and passenger flights at Stockholm with Avro machines. The Germans are doing their best to obtain a footing in Denmark, and a short time ago announced aeroplanes and seaplanes for sale at unmistakably "cut" prices. The same policy is being pursued by German companies throughout Scandinavia, although this method of obtaining business cannot be said to have helped their cause, as several accidents have already occurred with the machines. The

competition of our trade rivals must not be disregarded; it is a very real factor.

It is important to realise that once a country becomes permeated by machines of one type, a market for spare parts is secured, and the difficulty of effecting a radical change of type increases as time goes on; a golden opportunity will be lost if the British aircraft industry does not respond to the great good-will which already exists in Scandinavia towards British people and British manufacturers.

With regard to the flight itself, the object of demonstrating the advanced state of development of British aircraft and the potentialities of flying-boats for commercial purposes was excellently achieved. From the technical standpoint, the experience gave proof of high efficiency; the hull of the flying-boat was as seaworthy after its month's immersion and exposure as when it left Felixstowe, and the reliability of the Rolls-Royce engines was beyond praise. The wireless telegraphy installation was thoroughly trustworthy, and communication was maintained with Dundee during the entire period of the voyage across the North Sea.

Thanks largely to the unstinted assistance of the authorities at the places where descents were made, the arrangements for mooring and refuelling also worked perfectly.

The times and distances of the stages flown were as follows:—

	Sea miles.	Hours Flying.
Felixstowe to Dundee, July 11 ..	360	6-0
Dundee to Christiansand, July 20 ..	380	7-15
Christiansand to Christiania, July 22 ..	150	2-20
Christiania to Copenhagen, July 29 ..	265	4-15
Copenhagen to Stockholm, August 3 ..	390	4-30
Stockholm to Goteborg, August 4 ..	300	5-0
Goteborg to Esbjerg, August 5 ..	245	4-25
Esbjerg to Felixstowe, August 6 ..	360	6-55
	2,450	40-40

In addition, demonstration flights, aggregating 5½ hours, were made.

An extraordinary example of accurate air navigation was furnished on the outgoing journey, when flying over the North Sea through thick mist and clouds, from Dundee to the coast of Norway, the machine arrived at scheduled time at a point not more than two miles from the intended "land-fall" on the Norwegian coast.

Flying Weeks for Nottingham and Derby

SITES at Nottingham and Derby have been licensed, and flying weeks will be run at these towns by some of the

Blackpool and Southport Avro pilots. A popular flight should be the journey between these two Midland towns and return.



Casualties

Lieut. LOUIS BENNETT, 40th Squadron, R.A.F., B.E.F., reported "missing" on August 24, 1918, is now officially reported as killed in action, having been shot down in flames, after destroying two enemy observation balloons. He was an American, and the only son of Hon. and Mrs. Louis Bennett, of West Virginia. When the United States declared war he left Yale, and raised and trained at his own expense the West Virginia Flying Corps, which he offered to his Government to serve as a unit in France, like the Lafayette Escadrille. This being refused, he joined the R.F.C., and came over with the Canadians, in order to get into action. His record between August 15 and 24 was three enemy planes and nine balloons destroyed—four in one day—for which he was congratulated and recommended for the D.F.C.

Lieut. WALTER GILMAN, who was previously reported missing on July 13, 1918, after alighting in the sea when returning from a bombing raid, and now officially presumed died on or since that date, was the only son of Mr. and Mrs. William Gilman, Hazelcroft, Alderley Edge, Cheshire.

Lieut. JAMES GORDON MOORE, R.A.F., died on Thursday, August 14, 1919, as the result of wounds received in action, aged 24 years.

Married

Lieut. A. G. D. ALDERSON, R.A.F., son of the Rev. A. D. Alderson, of Tockwith, York, was married on August 18, at Swanage, to EDITH MARY, eldest daughter of Mr. DAVID DOIG, of Rosslyn House, New Barnet.

ROBERT JOSEPH CARLTON GROVES, A.I.F., elder son of Mr. and Mrs. Robert Groves, of Melbourne, Australia, was married on August 12, at Bromley Parish Church, to KATHERINE MARY, only daughter of the late Revd. RICHARD F. EARNSHAW and Mrs. Earnshaw, of 33, Selby Road, Anerley, S.E. (late of Northampton).

Capt. S. BERKELEY HARRIS, A.F.C., R.A.F., only son of Capt. and Mrs. G. E. Harris, Quadrille Court, Lymington, was married on August 21, at St. Jude's Church, Southsea, to ENID, only daughter of Paymaster-Com. and Mrs. CAMPION, 1, Sussex Place, Southsea.

Lieut. LIONEL R. V. SPENCER, Aust. F.C., son of Mr. R. Spencer, of the Old White Hart Hotel, Melbourne, was married on August 6, at All Saints, Scarborough, to DOROTHY CECILIA, eldest daughter of Mr. G. T. PATTMAN and Mrs. Pattman.

To be Married

The engagement is announced between DAVID STEWART ANDERSON, Lieut. R.A.F., son of the late Mr. C. D. Anderson, and nephew of Mr. R. Woolley Walden, J.P., and PHYLLIS

JESSIE, only daughter of Mr. and Mrs. JAMES YEO, Woodhurst, Warlingham, Surrey.

The engagement is announced between Flt-Lieut. HECTOR A. CAMPBELL, A.F.C., Seaforth Highlanders, attached R.A.F., youngest son of Col. and Mrs. Campbell, of Larachan, Sutherlandshire, to ECIE COLLINGWOOD-ALLEN, elder daughter of Major and Mrs. H. C. Allen, Charlton Lodge, Shepton Mallet, Somerset.

The engagement is announced between Capt. G. F. CASWELL, R.A.F., and MAY, daughter of GEORGE EDWARDS, J.P., and Mrs. EDWARDS, of 180, Piccadilly, W., and "Cheniston," Egham, Surrey.

A marriage is arranged, and will shortly take place, between Capt. R. J. O. COMPSTON, D.S.C., F.C., R.A.F., younger son of the Rev. H. F. Compston, Fellow of King's College, London, and NINA, only child of the late ARTHUR HAYWARD BARCLAY, Capt., 18th Hussars, and adopted daughter of Lieut.-Col. Hubert F. Barclay, of Essendon Close, Hatfield, Herts.

The engagement is announced between Capt. AUBREY B. ELLWOOD, D.S.C., R.A.F., youngest son of the Rev. C. E. and Mrs. Ellwood, Cottesmore Rectory, Oakham, and LESLEY MARY JOAN, daughter of Mr. and Mrs. W. P. MATTHEWS, The Old House, Walmer, Kent.

The engagement is announced between Lieut.-Col. F. HOWARD JENKINS, O.B.E., M.C., R.A.F., second son of the late J. H. Jenkins, M.R.C.S., L.R.C.P., of Lytham, Lancashire, and HARRIET FERNELITH, second daughter of DUNCAN J. ROBERTSON, O.B.E., County Clerk of Orkney.

The engagement is announced between Capt. WILLIAM ROBERT KEMPSON, R.F.A. (T.), late R.A.F., of Thorpe, Norwich, and Miss ENID MARGARET FEARNSIDE, daughter of Colonel C. F. Fearnside, I.M.S., and Mrs. Fearnside, of Haven House, Conway.

The engagement is announced between Lieut. RITCHIE FRANCIS HENRY MOFFETT, R.A.F., son of J. Ritchie Moffett, of Ladybrand, O.F.S., South Africa, and HILDA PAULINE, daughter of Mrs. YERBURY, 26, Milton Road, Acton, London, W.

The engagement is announced of Capt. A. COURTENAY SNOW, R.A.F., only son of Mr. and Mrs. John Snow, Penllwyn Park, Carmarthen, and DOROTHY ELIZABETH BLIGH, youngest daughter of Mrs. LIVESAY, Eaglehurst, Alverstoke, Hants.

Items

The will of the late Lieut. THOMAS HENRY LUCAS, R.A.F., of Swindon, Wilts, who died in Egypt, has been proved at £360.

The will of the late Maj. MAURICE NASMITH PERRIN, R.A.F., of Kensington, has been proved at £14,817.



Roll of Honour

PUBLISHED August 29—Died: Lieut. P. E. Williams, Cent. Ont. Regt., attached R.A.F.

A message from Archangel on August 30 announced that Major Macdonald of the Flying Corps had been killed in the disaster to the monitor *Glowworm*.

General Lee Killed

Brig.-Gen. LEE, late R.A.F., was killed at Weston-super-Mare on Monday evening.

The aeroplane in which he was flying, with two passengers, while making a turn at a height of between 100 and 200 ft., crashed to the ground. Gen. Lee was badly injured about the head, and both legs were broken, and he died before assistance arrived.

The two passengers escaped with minor injuries and shock.

Italian Machine crashes in Austria

Word comes from Vienna that a Caproni aeroplane,

starting from the aviation ground at Aspern, near Vienna, with two officers of the Italian Armistice Commission, the pilot and an engineer, for Rome *via* Turin, crashed from an altitude of less than a thousand feet. All four occupants were killed immediately and the aeroplane was completely wrecked.

Double Fatality in Norway

WHILE flying a Farman machine at Vaernebmeren, near Trondhjem on August 29, Lieut. Jordan was caught in a violent storm, and crashed immediately from a height of 50 metres. The wreckage burst into flames and the pilot and passenger (Lieut. Stokke) were killed.

Spain Wants 20 School Machines

APPARENTLY the Spanish authorities have decided to go ahead with the instruction of pupils, as it is stated that they are contemplating the purchase of 20 school machines.

THE ROYAL AIR FORCE

London Gazette, Aug. 22.

Permanent Officers.

The attention of the officers named in this *Gazette* is directed to Air Ministry Weekly Orders Nos. 866 and 942 of 1919, relating to the grant of permanent commissions, and to the rates and conditions of pay and other emoluments.

The following are granted permanent commissions, in the R.A.F. in the ranks stated, with seniority as shown in the current Air Force List:—

Colonels.—H. R. Brooke-Popham, C.B., C.M.G., D.S.O., A.F.C., (Actg. Brig.-Gen.) B. C. H. Drew, C.M.G., C.B.E. (S.O.).

Lieutenant-Colonels.—A. D. Warrington-Morris, C.M.G., O.B.E. (S.O.), R. E. M. Russell, C.B.E., D.S.O. (S.O.), J. L. Forbes (A.P., T.), F. Ranken (A.P., T.), C. T. Maclean, D.S.O., M.C. (A.), O. H. K. Maguire, D.S.O. (A.).

Majors.—R. H. Verney, O.B.E. (A.P., T.), A. H. W. E. Wynne, O.B.E. (S.O.), A. J. Miley, O.B.E. (A.P., T.), R. Hilton-Jones, O.B.E. (S.O.), R. M. Hill, M.C., A.F.C. (A.), G. H. Norman (A.), H. J. F. Hunter, M.C. (A.), V. S. Brown (A.P., T.), F. W. Scarff, M.B.E. (A.P., T.), W. A. McLaughry, D.S.O. M.C., D.F.C. (A.).

Captains.—R. Addenbrooke-Prout, O.B.E., M.C. (S.O.), A. S. C. MacLaren, M.C., A.F.C. (A.), K. M. St. C. G. Leask, M.C. (A.), O. M. Sutton, M.C. (A.), J. Noakes (A.), O. Stewart, M.C., A.F.C. (A.), G. S. M. Insall, V.C. (A.), H. J. Edgar (A.), G. Barrett, A.F.C. (A.), G. L. Godden, O.B.E. (T.), C. Turner, A.F.C. (A.), J. F. Roche (A.), M. F. Browne (T.), R. F. L. Dickey, D.S.C. (A. and S.), W. J. de Salis, D.S.C. (A. and S.), G. T. R. Hill (A.), J. G. S. Candy (A.).

Lieutenants.—R. S. Capon (A.), A. G. Jarvis (A.), J. W. D. Leigh, M.C. (A.), T. C. Luke, M.C. (A.), C. G. Mathew (A.), J. H. Jephson (A.); Aug. 1.

The following temp. appt. is made:—
Staff Officer, 3rd Class.—(T.).—Sec. Lieut. H. Norrington; May 1 (substituted for notification in *Gazette* of July 22).

Flying Branch.

Lieut. S. L. Pope relinquishes the grading for purposes of pay and allowances as Capt.; Aug. 4.

The following relinquish their commissions, on ceasing to be employed:—

Lieut. P. W. Taylor, D.C.M. (Lieut., R.G.A.); April 30. Lieut. D. F. Lawson (Lieut., Dorset R.); July 23. Sec. Lieut. (Hon. Lieut.) W. L. W. Dryland (Lieut., Northants R.); Lieut. A. D. MacDonald (Can. Engrs.); July 29. Lieut. W. E. Lambert (Lieut., B. Col. R.); July 31.

(Then follow the names of 117 officers transferred to unemployed list.)

The following Lieuts. resign their commissions:—L. L. Grant; July 23, 1918 (substituted for notification in *Gazette* June 1, 1918). G. B. E. Norburn (Lieut., R.I. Rif.); Aug. 22.

Lieut. T. J. Donovan is cashiered by sentence of a General Court-martial; Aug. 1.

Sec. Lieut. C. L. Stewart relinquishes his commission, on account of ill-health, and is permitted to retain his rank; July 28.

Sec. Lieut. (Hon. Lieut.) W. S. McLean (R.F.A.) relinquishes his commission, on account of ill-health contracted on active service; Aug. 21.

The initials of Lieut. H. A. Wallace are as now described, and not "A. H." as stated in *Gazette* July 8.

The surname of Lieut. S. H. Wallace is as now described, and not "Wallace," as stated in *Gazette* July 8.

The surname of Sec. Lieut. B. G. Whatmough is as now described, and not "Wattmough," as stated in *Gazette* July 8.

The initials of Sec. Lieut. R. T. North are as now described, and not "N. T.," as stated in the *Gazette* July 29.

The surname of Sec. Lieut. (Hon. Capt.) E. E. Carral-Wilcocks as is now described, and not "E. E. C. Wilcocks," as stated in the *Gazette* of June 13.

The notification in the *Gazette* of July 8 concerning Sec. Lieut. C. S. Gregg is cancelled.

Administrative Branch.

Lieut. (Hon. Capt.) H. G. White to be Lieut. (Hon. Capt.), from unemployed list, prec. next below Lieut. E. King; Aug. 9.

The following are granted temp. commissions, as Sec. Lieuts.:—A. P. Jacoby (Temp. Lieut., K.A. Rif.); Nov. 13, seniority April 1, 1918, and to be Hon. Lieut. W. A. Hatchett; Aug. 18. A. G. Owen; Aug. 19.

(Then follow the names of 21 officers transferred to unemployed list.)

Lieut. J. Dudley relinquishes his commission, on account of ill-health contracted on active service, and is permitted to retain his rank; Aug. 7.

Sec. Lieut. (Hon. Lieut.) J. D. C. Curtis, M.C. (Lancashire R.), relinquishes his commission, on account of ill-health caused by wounds; Aug. 21.

The initials of Sec. Lieut. J. G. Elliott are as now described, and not "J. T." as stated in the *Gazette* of June 3.

The Christian names of Harold Clyde Thomas are as now described, and not "H. C.," as in the *Gazette* of Aug. 1.

The surname of Lieut. P. R. Mallinson is as now described, and not "Mattinson," as stated in the *Gazette* of Aug. 12.

The surname of Sec. Lieut. K. Draco is as now described, and not "Drago," as stated in the *Gazette* of July 29.

The surname of Lieut. G. Wallas is as now described, and not "Wallis," as stated in the *Gazette* of July 8.

The notification in the *Gazette* of July 18 concerning Sec. Lieut. H. Smith, D.F.C., is cancelled.

The notification in the *Gazette* of July 29 concerning Sec. Lieut. A. Challins is cancelled.

Technical Branch.

Capt. C. J. Smith to be Actg. Maj., Grade (B.), from Aug. 6, 1918, to April 30.

Capt. C. J. Smith to be graded for purposes of pay and allowances as Maj., whilst employed as Maj., Grade (B.); May 1.

Sec. Lieut. E. A. Blundell to be Sec. Lieut., Grade (A.), from (A'ship); June 26, 1918 (substituted for the notification in the *Gazette* of June 3).

(Then follow the names of 26 officers transferred to unemployed list.)

Lieut. J. T. Rossiter resigns his commission, and is permitted to retain his rank; July 31, 1918.

The notification in the *Gazette* of April 1 concerning Lieut. C. A. Elliott is cancelled (substituted for the notification in the *Gazette* of June 27).

The notification in the *Gazette* of July 30, 1918, concerning Lieut. J. T. Rossiter is cancelled.

The notification in the *Gazette* of Aug. 15 concerning Sec. Lieut. E. L. M. Emtage is cancelled.

Medical Branch.

C. P. V. MacCormack is granted a temp. commission, as Capt.; Aug. 22.

Lieut. C. Duggan to be Actg. Capt. whilst employed as Capt. without pay and allowances of that rank; June 20.

G. H. H. Maxwell is granted a temp. commission, as Lieut.; Aug. 22.

T. H. K. MacLaughlin is granted a temp. commission, as Lieut.; Aug. 7.

Transfd. to unemployed list:—Capt. J. W. Brash; March 1. Capt. G.

Sparrow; May 19. Lieut. N. C. Cooper; June 23. Capt. N. C. Graham, M.C.; Aug. 13.

Chaplains' Branch.

The Rev. A. S. Bishop relinquishes his commission, on ceasing to be employed; April 26.

Memoranda.

The following temp. Hon. Lieuts. relinquish their commissions, on ceasing to be employed:—P. J. Boucher; May 31. F. J. Lynes; Aug. 20.

Transfd. to unemployed list:—Sec. Lieut. R. J. Walker; July 17. Sec. Lieut. C. A. Russell; Aug. 14.

Capt. C. F. Greaves relinquishes his commission, on account of ill-health contracted on active service, and is permitted to retain his rank; Aug. 12.

London Gazette, August 26.

The following temporary appointments are made at the Air Ministry:—
Staff Officers, 3rd Class (P.).—Flying Off. E. N. D. Worsley, Sec. Lieut. H. Baker (August 1).

Staff Officer, 4th Class (R.).—Lieut. E. H. Eldridge (August 20).

The following appointment is made:—
Staff Officer, 1st Class (P.).—Lieut.-Col. C. T. Maclean, D.S.O., M.C. (substituted for notification in *Gazette* of August 19).

Flying Branch.

Maj. R. B. B. Colmore, O.B.E., to be Maj. (A'ship), from (S.O.) (May 12) (substituted for notification in *Gazette* of August 5).

Cpts. to be graded for purposes of pay and allowances, as Maj. whilst employed as Maj. (A.):—R. M. Drummond, D.S.O., M.C. (May 1); C. W. Hyde (from May 1 to 11).

Capt. (actg. Maj.) R. S. Booth, A.F.C., to be Capt. (A'shp.), and to relinquish the actg. rank of Maj. from (S.O.) (August 10).

Lieuts. to be actg. Cpts. whilst empd. as Cpts. (A.):—C. S. Stonehouse from October 25, 1918, to April 30; W. L. Fenwick (June 1).

Lieuts. to be graded for purposes of pay and allowances, as Cpts. whilst empd. as Cpts.:—W. L. Fenwick (from May 1 to 31); T. H. French, D.F.C. (from May 1 to July 1); T. S. Ivens (from May 1 to July 15); J. R. Milne, D.F.C. (from May 1 to July 15); F. V. Way, A.F.C. (from May 1 to June 22); S. Baker, S. E. Faber, A.F.C., E. M. Henderson, R. C. Jenkins, M.C., S. P. Marcus, H. V. Pendavis, D.S.O., W. K. Sutton, R. L. Lyster-Smythe, H. E. Walker, M.C., D.F.C., E. W. White (May 1).

Lieut. R. A. Denne to be Lieut. (A.) from (Ad.) (April 15).

Sec. Lieut. H. G. Pratt to be Lieut. (August 31, 1918).

Sec. Lieut. H. A. Castaldini to be actg. Lieut. whilst empd. as Lieut. (O.), from December 11, 1918, to April 30 (substituted for notification in the *Gazette* of January 24); A. A. Phillips (temp. Sec. Lieut., R.W. Kent R.) is granted a temp. commission, as Sec. Lieut. (O.) (October 30, 1918) (substituted for the notification in the *Gazette* of December 31, 1918).

The following relinquish their commissions, on ceasing to be empd.:—Lieut. H. Seymour, and is permitted to retain his rank (August 31, 1918) (substituted for notification in the *Gazette* of August 30, 1918); Lieut. Hon. Capt. D. Owen (Capt., Nova Scotia R.) (May 31); Lieut. E. C. L. Copner (Lieut., Devon R.) (July 30); Lieut. J. M. Leach (Lieut., York R.) (August 6); Sec. Lieut. (Hon. Lieut.) D. McD. Northcombe (Lieut., W. Ont. R.) (August 13); Lieut. (Hon. Capt.) A. M. Mitchell (Capt., R.A.S.C.) (August 20).

(Then follow the names of 100 officers transferred to unemployed list.)

Capt. E. F. Elderton relinquishes his commission, on acct. of ill-health caused by wounds, and is permitted to retain his rank (August 20).

The following Lieuts. relinquish their commissions, on account of ill-health and are permitted to retain their rank:—F. J. Taylor (caused by wounds) (July 28); A. N. Nesbit (caused by wounds) (August 7); A. Coombs (August 13); H. A. Smeeton (August 15).

Lieut. J. MacGeorge (Gord. Highrs.) resigns his commission, and is permitted to retain his rank (August 27).

Sec. Lieut. J. N. Hamman resigns his commission, and is permitted to retain his rank (March 6) (substituted for notification *Gazette*, November 29, 1918).

The following Sec. Lieuts. relinquish their commissions, on account of ill-health, and are permitted to retain their rank:—A. L. Fachnie (July 11) (substituted for notification in *Gazette* of June 20); S. Soothill (caused by wounds); G. E. Williams (caused by wounds) (August 14); H. R. Messinger (contracted on active service) (August 16); J. Levy (August 20) (substituted for notification in *Gazette* of January 10).

Sec. Lieut. P. A. Templeton is antedated in his appt. as Sec. Lieut. (A. and S.) (May 25, 1918).

The name of Sec. Lieut. (Hon. Capt.) L. Wilmot-Johnson is as now described, and not "J. L. Wilmot," as stated in *Gazette* of July 29.

The initial of Sec. Lieut. C. Crosthwaite is as now described, and not "G." as stated in *Gazette* of August 15.

The initials of A. C. D. Anderson are as now described, and not "A. C." as stated in *Gazette* of September 6, 1918.

The notification in *Gazette* July 29, concerning Sec. Lieut. W. R. Wright refers to "Walter Redvers Wright."

The surname of Lieut. (Hon. Capt.) H. N. Witting is as now described, and not "Whitting" as stated in *Gazette* of June 13.

The notification in *Gazette* of December 31, 1918, concerning Sec. Lieut. M. Ross-Jenkins (deceased) is cancelled.

The notification in *Gazette*, March 28, concerning Lieut. E. Tasker, A.F.C., is cancelled.

The notification in *Gazette*, April 1, concerning Capt. E. J. B. How is cancelled.

The notification in *Gazette*, April 11, concerning Sec. Lieut. G. Gardiner is cancelled.

The notification in *Gazette*, May 6, concerning Lieut. J. Davidson is cancelled.

The notification in *Gazette*, June 27, concerning Sec. Lieut. J. Stopford is cancelled.

The notification in *Gazette*, July 22, concerning Lieut. H. S. Preston is cancelled.

The notification in *Gazette*, July 25, concerning Sec. Lieut. R. Russell is cancelled.

The notification in *Gazette*, July 29, concerning Sec. Lieut. W. Kinghorn (deceased) is cancelled.

The notification in *Gazette*, July 29, concerning Sec. Lieut. H. J. Clark is cancelled.

The notification in *Gazette*, July 15, concerning Lieut. J. H. Williamson is cancelled.

The notification in *Gazette*, April 25, concerning Lieut. A. C. Anderson is cancelled.

The notification in *Gazette*, July 18, concerning Sec. Lieut. A. L. Fachnie is cancelled.



The notification in *Gazette*, August 15, concerning Lieut. D. Cairns is cancelled.
The notification in *Gazette*, February 14, concerning Sec. Lieut. F. L. Roberts is cancelled.

Administrative Branch

Sec. Lieuts. to be Lieuts.:—H. J. Clark (August 9, 1918); (Actg. Capt.) G. D. Ashby (October 20, 1918); and to retain the actg. rank of Capt. until April 30 (substituted for notification in *Gazette* July 18).
Sec. Lieut. H. F. Hendry (late Gen. List, R.F.C., on prob.) is confirmed in rank as Sec. Lieut. (August 26, 1918).
G. J. Maunsell (Sec. Lieut., Lond. R.) is granted a temp. commn. as Sec. Lieut. (April 1, 1918).
Lieut. S. McGaw (Lieut., Gord. Highrs.) relinquishes his commn. on ceasing to be empd. (August 1).
(Then follow the names of 28 officers transferred to unemployed list.)
Lieut. A. A. Denison, M.B.E., M.C. (Lieut., York and Lancs. R.), resigns his commn. and is permitted to retain his rank (August 27).
Lieut. E. J. Street (Regular Army Officer) relinquishes his commn. on account of ill-health (August 26).
Lieut. (Hon. Capt.) K. E. Clayton (Somerset L.I.) is dismissed the Service by sentence of a General Court-Martial (August 6).
Sec. Lieut. H. B. Willoughby relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank (August 14).
Sec. Lieut. T. L. Davies (Dgn. Gds.) relinquishes his commn. on account of ill-health (August 14).
The notification in the *Gazette* of April 4 concerning Sec. Lieut. J. Sadler is cancelled.
The notification in the *Gazette* of May 23 concerning Sec. Lieut. H. T. Bolt is cancelled.
The notifications in the *Gazette* of July 18 concerning Sec. Lieut. R. A. Smith, Sec. Lieut. W. J. Bradshaw, and Capt. C. D. Smart, M.C., are cancelled.
The notification in the *Gazette* of May 20 concerning Lieut. A. L. Freeman is cancelled.
The notification in the *Gazette* of August 8 concerning Lieut. A. N. Nesbitt is cancelled.

Technical Branch

Sec. Lieut. (Hon. Capt.) J. R. Cassidy to be Lieut. (April 23, 1918), without pay and allowances prior to August 22, 1918.
Sec. Lieut. C. C. Hicks to be Lieut., without pay and allowances of that rank (April 20).
The following relinquish their commns. on ceasing to be empd.:—Sec. Lieut. A. L. Bird (April 6, 1918); Capt. H. A. Saunders (Capt., R. Marines) (May 24).
(Then follow the names of 33 officers transferred to unemployed list.)
Sec. Lieut. F. L. Roberts relinquishes his commn. on account of ill-health, and is permitted to retain his rank (August 15).
The surname of Sec. Lieut. (actg. Lieut.) H. F. Weet is as now described, and not "West," as stated in the *Gazette* of June 10.
The notification in the *Gazette* of January 3 concerning Sec. Lieut. A. A. Davis is cancelled.

Medical Branch

The following are granted temp. commns. as Capt.:—J. G. Skeet (late Capt., A.I.F.) (August 10); G. M. Mellor (August 21).
Lieut.-Col. E. O. B. Carbery, O.B.E. (Surg.-Commander, R.N.), relinquishes his commn. on ceasing to be empd. (August 15).
Transferred to unempd. list:—Capt. G. Visger (August 1); Capt. R. H. Robbins (August 14).

Dental Branch

W. P. Bole is granted a temp. commn. as Lieut. (July 28).

Chaplains' Branch

The Rev. E. Roberts is transfd. to unempd. list (April 9).
The notification in *Gazette*, August 22, concerning Rev. A. S. Bishop is cancelled.

Memoranda

Here follow the names of three Overseas Cadets granted temp. commissions as Sec. Lieuts., and the names of 130 Cadets granted Hon. Commissions as Sec. Lieuts.
Lieut.-Col. C. R. Finch-Noyes, D.S.O., A.F.C. (Paymaster-Lieut., R.N.) relinquishes his commn. on ceasing to be empd. (August 16).
The follg. temp. Hon. Lieuts. relinquish their commns. on ceasing to be empd.:—A. J. Mackay (May 16); C. A. Packer (May 31); W. R. V. Morgan (June 16); R. Searle (July 31); P. C. Thornton (August 24).
Transferred to unempd. list:—Sec. Lieut. W. J. Randall (March 13); Capt. W. A. C. Ricketts, from (S.O.) (May 4); Lieut. E. G. Clement from (S.O.) (August 1); Sec. Lieut. M. L. Bisson, Sec. Lieut. J. H. F. Hock, Sec. Lieut. G. T. Horne, Sec. Lieut. S. J. Livingstone, Sec. Lieut. W. E. May, Sec. Lieut. E. Moorlands, Sec. Lieut. L. M. Montgomery (August 14), Capt. F. Spencer from (S.O.) (August 16).
The initials of 176681 Cdt. K. McArthur are as now described, and not R. McArthur, as stated in the *Gazette* of August 19.

London Gazette, August 29.

The following appointments are made:—
Brigadier-General Staff.—Col. (actg. Brig.-Gen.) B. H. H. Cooke, C.M.G., C.B.E., D.S.O., is graded for purposes of pay and allowances as Maj.-Gen. while officiating in command of an area; Feb. 27.

Staff Officers, 1st Class (P.).—Col. A. M. Bent, C.M.G., C.B.E., is graded for purposes of pay and allowances as Brig.-Gen. while officiating as Brig.-Gen. Staff; Feb. 27. (T.) Maj. T. G. Hetherington, C.B.E., is graded for purposes of pay and allowances as Col. while officiating as Col., Staff, from Feb. 18 to July 31.

Staff Officer, 3rd Class (P.).—Capt. E. F. Wilkinson; July 23.

Flying Branch

Capt. C. H. Elliot-Smith is graded for purposes of pay and allowances of Maj. while employed as Maj. (A.); May 1.
Capt. R. S. Smith relinquishes the grading for purposes of pay and allowances as Maj. (K.B.); July 20 (substituted for notification in *Gazette* of Aug. 1).
Capt. B. C. Clayton to be Capt. (A.) from (T.); May 15.
The following Lieuts. are graded for purposes of pay and allowances as Capts. while employed as Capts. (A.):—H. G. Davis, D.F.C., S. G. Frogley, G. C. Gardiner, D.F.C., H. Hillier, D.F.C., A. E. Morgan, W. S. Reid; May 1.
The following relinquish the actg. rank of Capt. on ceasing to be employed as Capts.:—Lieut. H. F. Nicholls, D.F.C.; July 29. Lieut. W. F. J. Harvey D.F.C.; July 30. Lieut. G. L. Hobbs, M.C.; Aug. 8.
Sec. Lieut. H. A. Gastaldini is graded for purposes of pay and allowances as Lieut. while employed as Lieut. (O.); May 1.
Sec. Lieut. J. T. O'Brien to be Sec. Lieut., from Unemployed List, prec. next below Sec. Lieut. C. A. White; July 23.
The following relinquish their commns. on ceasing to be employed: Sec. Lieut. C. L. Douthwaite (E. Yorks. R., T.F.); March 12. Lieut. W. G. Fluke, D.S.O. (Lieut., S. Staffs. R.); May 12. Capt. H. S. Parsons (Capt., Can. Forces); June 19. Sec. Lieut. (Hon. Lieut.) M. McRae (Capt., Can. Forces); July 13. Sec. Lieut. C. E. Eddy (Lieut., Gen. List, S. Afr. Forces);

Aug. 5. Lieut. (Hon. Capt.) H. G. L. Mayne (Capt., K.O.S.B.); Aug. 9. Lieut. (Hon. Capt.) C. H. L. Coney (Capt., N. Staffs. R.); Aug. 11. Lieut. J. Cave (Lieut., Manitoba R.), Sec. Lieut. H. A. Crommelin; Aug. 13. Lieut. J. Sharp (Lieut., S. Ir. Horse); Aug. 15.

(Then follow the names of 71 officers who are transfd. to the Unemployed List under various dates).

Capt. E. K. H. Turnour (Lieut., R.N.) resigns his commn., and is permitted to retain the rank of Capt.; Aug. 30.

The following Lieuts. relinquish their commns. on account of ill-health and are permitted to retain their rank:—J. E. Howell; Aug. 20. W. S. Featherstonhaugh; Aug. 21.

Lieut. L. H. Mackay (Scottish Rifles) resigns his commn., and is permitted to retain his rank; Aug. 30.

Lieut. M. J. P. Scully (R. Inniskilling Fus.) is cashiered by sentence of a General Court-martial; Aug. 11.

Sec. Lieut. D. E. Culver relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank; Aug. 19.

The surname of Lieut. G. W. Gauld is as now described, and not "Gould," as stated in the *Gazette* of April 25.

The surname of Sec. Lieut. R. P. Coton is as now described, and not "Caton," as stated in the *Gazette* of May 27.

The initials of Sec. Lieut. C. A. Muir are as now described, and not "J. A." as stated in the *Gazette* of June 3.

The surname of Lieut. H. S. Wellby is as now described, and not "Welby," as stated in the *Gazette* of May 27.

The surname of Lieut. J. G. Prestwich is as now described, and not "Prestwick," as stated in the *Gazettes* of July 1 and June 24.

The initials of Sec. Lieut. J. T. O'Brien are as now described, and not "J. D.," as stated in the *Gazette* of July 4.

The initials of Lieut. S. Y. Grant are as now described, and not "S. W.," as stated in the *Gazette* of April 25.

The notification in the *Gazette* of Aug. 27, 1918, concerning Flight Cadet H. W. Williams is cancelled.

The notification in the *Gazette* of March 28 concerning Lieut. (actg. Capt.) E. Swale, D.F.C., is cancelled.

The notification in the *Gazette* of April 4 concerning Lieut. (actg. Capt.) M. G. W. Stewart, D.F.C., is cancelled.

The notification in the *Gazette* of May 20 concerning Capt. C. G. Davis, M.C., is cancelled.

The notification in the *Gazette* of June 3 concerning Lieut. H. L. Young is cancelled.

The notifications in the *Gazette* of June 24 concerning Sec. Lieut. J. S. McGeown and Sec. Lieut. H. R. Hayden are cancelled.

The notification in the *Gazette* of July 11 concerning Sec. Lieut. T. C. Stranger is cancelled.

The notification in the *Gazette* of July 18 concerning Sec. Lieut. (Hon. Lieut.) M. C. Sexton is cancelled.

The notification in the *Gazette* of July 29 concerning Lieut. W. C. Siddaway is cancelled.

Administrative Branch

Lieut.-Col. (actg. Col.) A. W. C. McFall relinquishes the actg. rank of Col. on ceasing to be employed as Col.; Aug. 1.

Maj. (actg. Lieut.-Col.) D. Mackenzie relinquishes the actg. rank of Lieut.-Col. on ceasing to be employed as Lieut.-Col.; Aug. 1.

Cpts. to be actg. Majs. whilst employed as Majs., without pay and allowances of that rank:—R. W. Dawes, J. L. Walshe; July 31.

Capt. L. M. Boddam-Whetham to be Capt., from (S.O.); Aug. 7.

Capt. A. F. Marlowe is graded for purposes of pay and allowances as Capt. whilst employed as P.T.O.; April 10.

Lieut. H. F. Fuller to be actg. Capt. whilst employed as Capt.; July 18.

The following Lieuts. are graded for purposes of pay and allowances as Capts. whilst employed as Capts.:—(Hon. Capt.) P. Colbeck, M.B.E.; (Hon. Capt.) R. T. H. Watson; May 1. R. L. J. Gerard, from May 1 to June 5; C. H. Tancred, from May 1 to May 26.

Sec. Lieut. H. F. Hendry to be Lieut.; March 2.

The following relinquish their commns. on ceasing to be employed:—Lieut.-Col. (actg. Col.) W. P. Alexander, and is permitted to retain the rank of Col.; Aug. 1. Lieut. D. H. Bell, M.C. (Lieut., Queen's Own Cam. Highrs.), Sec. Lieut. (Hon. Capt.) T. G. Horn (Capt., Extra Regimentally Empd. List); Aug. 12.

(Then follow the names of 11 officers who are transfd. to the Unemployed List under various dates.)

Lieut. R. L. G. May (Lieut., Royal Fus.) resigns his commn.; Aug. 27.

Lieut. W. R. Ashwell (Leic. R., T.F.) relinquishes his commn. on account of ill-health contracted on active service; Aug. 28.

Lieut. W. B. Judd (Lieut., Dur. L.I.) is cashiered by sentence of a General Court-martial; Aug. 7.

Sec. Lieut. W. S. Greasley relinquishes his commn. on account of ill-health, and is permitted to retain his rank; Aug. 22.

The surname of Lieut. D. M. K. Marendaz is as now described, and not "Masendaz," as stated in the *Gazette* of May 6.

The surname of Sec. Lieut. C. W. Starke is as now described, and not "Starke," as stated in the *Gazette* of May 27.

The initials of Sec. Lieut. J. L. O'Hagan are as now described, and not "J. R.," as stated in the *Gazette* of May 20.

The notification in the *Gazette* of July 22 concerning Sec. Lieut. R. C. Rosser is cancelled.

Technical Branch

Maj. R. C. Lane is to be Maj., Grade (B), from (S.O.); July 31.

Capt. W. E. L. Seward, M.C., to be graded for purposes of pay and allowances as Maj. while employed as Maj., Grade (A); May 1.

The following Lieuts. are graded for purposes of pay and allowances as Capts. whilst employed as Capts., Grade (A.):—E. S. Cohen, A. E. Landon, W. Sutherland, J. A. V. Welsh (substituted for notification in the *Gazette* of July 22); May 1.

The following Lieuts. are graded for purposes of pay and allowances as Capts. whilst employed as Capts., Grade (B.):—J. Durward, F. M. I. Watts, M.B.E.; May 1. E. L. W. Smythe, from (Ad.), from May 1 to 27 (substituted for notification in the *Gazette* of July 8).

Sec. Lieut. (Hon. Lieut.) P. L. Lindup to be graded for purposes of pay and allowances as Capt., whilst employed as Capt., Grade (A); May 1.

Sec. Lieut. H. Barnes-Moss to be graded for purposes of pay and allowances as Capt., whilst employed as Capt., Grade (B); May 1.

Lieut. H. A. Adams to be Lieut., Grade (A), from (S.O.); May 12 (substituted for notification in the *Gazette* of May 30).

Lieut. A. A. Davis to be Lieut., Grade (B), from (O); July 27, 1918 (substituted for notification in the *Gazette* of Aug. 30, 1918).

Sec. Lieut. (actg. Capt.) W. W. Hamond to be Lieut., and to retain the actg. rank of Capt. until April 30.

Sec. Lieut. M. P. Graddon to be Lieut.; Oct. 27, 1918.

Sec. Lieut. G. A. Gillings to be Lieut., without pay and allowances of that rank; Nov. 17, 1918.

Sec. Lieuts. to be actg. Lieuts. whilst employed as Lieuts., Grade (A):—E. J. Wilkins, from Nov. 10, 1918, to April 30 (substituted for notification in the *Gazette* of Sept. 17, 1918); L. Hawkins, from (Ad.), from June 16, 1918, to April 30 (substituted for notification in the *Gazette* of Sept. 17, 1918.)

Sec. Lieuts. to be graded for purposes of pay and allowances as Lieuts., whilst employed as Lieuts., Grade (B) :—Hon. Lieut. G. H. Heys, from (Ad.), J. E. Tyrrell, Hon. Lieut. N. W. Walmsley; May 1.
(Then follow the names of 21 officers who are transfd. to the Unemployed List under various dates.)

The surname of Sec. Lieut. A. Gall is as now described, and not "Gill," as stated in the *Gazette* of June 24.

The surname of Sec. Lieut. W. F. Bevis is as now described, and not "Beirs," as stated in the *Gazette* of May 6.

The Christian names of Sec. Lieut. Robert Boyd Cheery are as now described, and not as stated in the *Gazette* of May 9.

The notification in the *Gazette* of Aug. 15 concerning Sec. Lieut. W. Brown is cancelled.

Medical Branch

Maj. G. D. Bateman, O.B.E., to be Lieut.-Col.; Nov. 21, 1918.
Lieuts. to be Capts. :—H. B. E. Green; Aug. 12. S. A. Nield-Faulkner; Aug. 14.

R. W. Ryan is granted a temp. commn. as Capt.; Aug. 22.
(Then follow the names of six officers who are transfd. to the Unemployed List under various dates.)

Capt. C. P. Strong relinquishes his commn. on account of ill-health, and is permitted to retain his rank; Aug. 22.

Dental Branch

Lieut. L. G. Smith to be Capt.; July 1.

Memoranda

Sec. Lieut. (Hon. Lieut.) P. J. Burns to be (Hon. Capt.); June 19.
(Then follow the names of 132 cadets granted hon. commns. as Sec. Lieuts.)

Capt. (actg. Maj.) W. C. Murray (Temp. Dental Surg., R.N.V.R.) relinquishes his commn. on ceasing to be employed; Aug. 31.

(Then follow the names of five officers who are transfd. to the Unemployed List under various dates.)

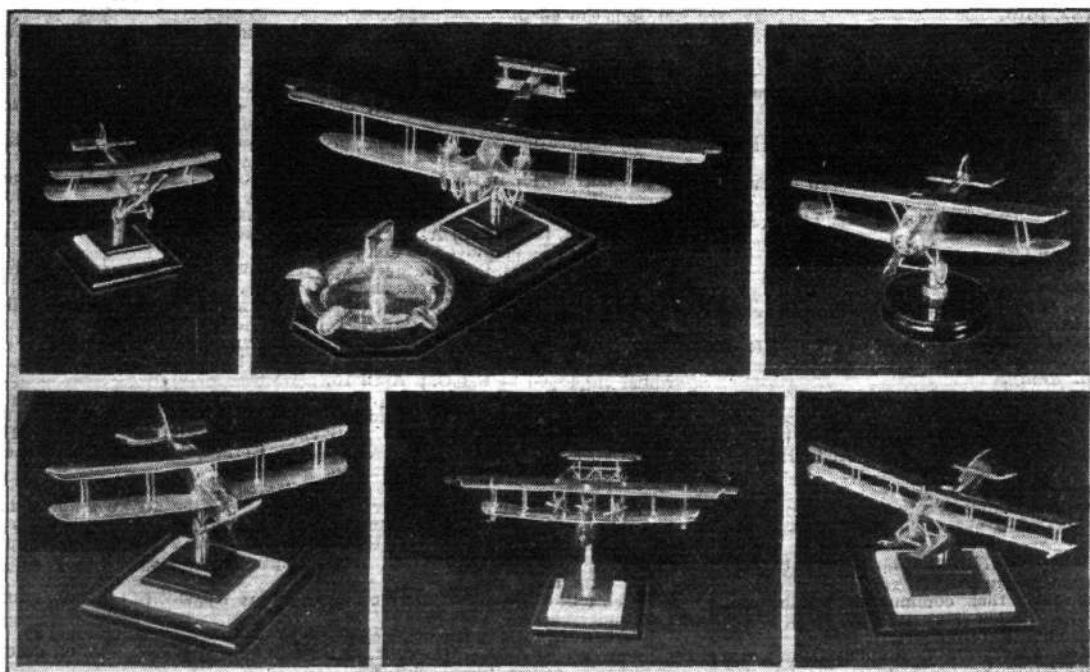


MASCOTS AND SOUVENIR MODELS

THERE are, no doubt, many pilots and others connected with aviation who have some sentimental attachment to a particular make of aeroplane—associations arising from active service during the War or a connection with a firm responsible for the origin of a machine. In such cases, mementoes of the machine are always welcome, and up to now these have generally taken the form of sundry photographs, cuttings from *FLIGHT*, and perhaps some component of the machine itself—salved from the crash! The ideal memento, however, is undoubtedly a scale model of the complete machine, and

types ready for delivery :—Avro 504 K., B.E. 2 c and e, Blackburn Kangaroo, Bristol (Scout, Fighter and Mono), D.H. (2, 4, 5, 9 and 9A), F.E. 2 b and d, Handley Page 0.400, Henry and Maurice Farman, Martinsyde F 3, Nieuport 27, R.E. 7 and 8, S.P.A.D., Short 84, S.E. 5 and 5A, Sopwith (Pup, Camel, 1½ Strutter, Triplane, Snipe, Dolphin), and Vickers Vimy. A model of any other type of machine can be made, however, provided drawings of the machine are obtainable.

That the maker of these models, Mr. Rogers, is thoroughly conversant with the design and construction of aircraft, is



○ ○ ○ ○ ○ ○ ○ ○

Six realistic scale models manufactured by Messrs. Rogers Bros. These are, reading from left to right: Top, Sopwith Pup, Handley Page 0.400, Sopwith Camel; bottom, Airco D.H. 4, N.C. 4 flying boat, Short Seaplane

○ ○ ○ ○ ○ ○ ○ ○

thanks to Messrs. Rogers Bros. and their "Tabloid" Aero and Engineering Works at Farnham Royal, Slough, it is now possible to obtain small, but wonderfully realistic scale models of practically every well-known type of aircraft. These models are made of metal, heavily silver-plated, and are exceptionally strong. Mounted on suitable stands, they form handsome ornaments, or useful paper-weights, ash trays, etc., whilst they can also be used as mascots on aeroplanes, boats or cars.

The size of these models varies from 5½ ins. to 12 ins.—the scales ranging from 1/4th to 1/2-in. The following are some of the

borne out by the fact that he has had over six years' experience in the construction of aircraft, having from time to time been associated with such firms as Messrs. Blériot, Fairey, Martinsyde, Sopwith and Whitehead.

Some idea as to the excellent workmanship of these models may be gathered from the accompanying illustration, showing six well-known types, although, to do them justice, they should be seen in actual being to be fully appreciated. Messrs. Rogers Bros. will be pleased upon application to supply any further particulars of these and other models to any of our readers who may be interested.

Aerial Services from Scarborough

ARRANGEMENTS have been made by the North Sea Aerial Navigation Co., Ltd., to run services between Scarborough and Middlesborough, Stockton and Darlington, and later services will be organised between Scarborough and Hull and Harrogate. The single fares range from £5 to £7 10s. Three-seater machines are being used, and it is anticipated that the trips will prove popular as all the journeys can be completed within the hour.

The Swedish Air Smuggling Case

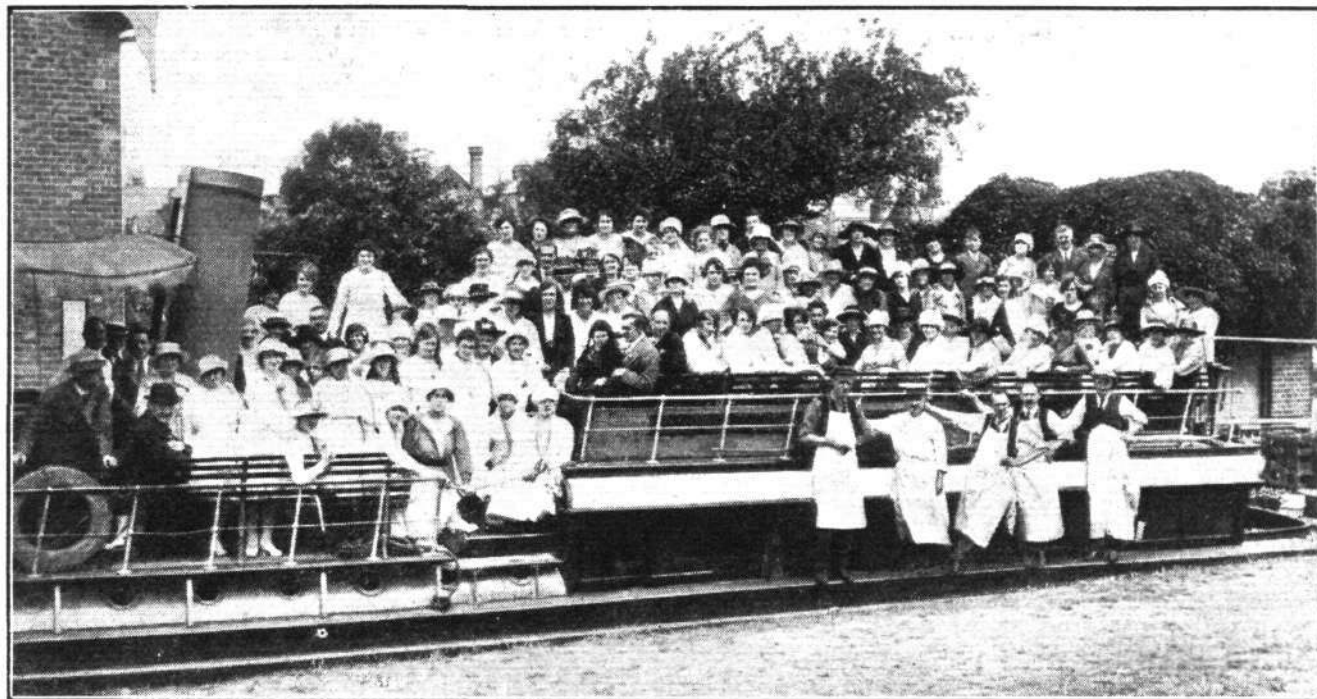
THE hearing of the case against Dr. Stockhausen and the Countess Solms-Wildenfels, who are charged with smuggling valuables into Sweden by aeroplane, has been begun at Trelleborg. For the accused it was explained that the Prince of Wied had a permit to export his fortune to Switzerland, but considered Sweden a safer place owing

to numerous German railway robberies, he decided to carry his valuables by aeroplane. The charge of attempting to deceive the Customs was ludicrous as the duty only amounted to 265 kr. (£14 14s.). The evidence showed that Dr. Stockhausen and the Countess of Solms-Wildenfels tried to escape, and that they denied before the police that they had any valuables in their knapsacks.

Dick Turpin Up to Date

AMONG the many curious stories coming from Germany now is one to the effect that after the chairman of the Berlin Insurance Co., had been decoyed to a boarding-house at Carlsbad and made to sign a cheque for a million and a half marks, the robbers used an aeroplane to get to Berlin in quick time to cash the cheque. They left their victim locked in his room, and when after some hours he got on to the window-sill and shouted for help, he was taken for a lunatic.

SIDE-WINDS



A BEVY OF "AERO COVERINGS, LTD.": Beauty on a happy up-river flip, whose enjoyment, by the absence in "quantities" of mere man, was apparently in no way interfered with.

SAND-YACHTING is quite an exhilarating sport and those who, for one reason or another cannot get up aloft, will find in it plenty of excitement. Sand yachts are a speciality of the Meteor Manufacturing Co., Ltd., of 98, Tollington Park,

London, N. 4, and they will be pleased to send particulars of their "Lady Betty" model to anyone interested and to arrange for a demonstration. This sand yacht is built entirely of steel tube and is British-made throughout.



MESSRS. S. SMITH AND SONS, LTD., AT PLAY AT THEIR SPORTS AT NEASDEN LAST WEEK-END : 1. Start of the 100 yards children's race (girls). 2. Finish of the 60 yards ladies' egg-and-spoon race first heat : (1st, Miss E. Dilk ; 2nd, Miss F. Marmo). The apparent winner in the photograph, before touching the line, is seen throwing her egg in the air and catching it. 3. Mr. W. A. Hill winning the high jump, 5 ft. 4 ins. This competitor had remarkable skill in jumping. 4. Start of Heat 2 of the sack race. 5. Mr. Holland winning the sack race final. 6. Ladies' tug-of-war, Team A. 7. Start of the 60 yards ladies' skipping race. 8. Finish of the 60 yards veterans' race

At the exhibition in Amsterdam on Thursday week, the 28th ultimo, Her Majesty the Queen of Holland was graciously pleased to accept a photograph of the "Vickers-Vimy-Rolls" Transatlantic aeroplane, which successfully accomplished the first non-stop Atlantic flight on June 15 last. The presentation took place at the Vickers' stand at the E.L.T.A. Exhibition.

At the flying exhibition the other day, Mr. Kenworthy was awarded second prize with a twin-engined 8-seater Blackburn Kangaroo machine. There were nine competitors, and with the exception of the Kangaroo, all the machines were stunt types manned by the cream of European pilots. Prizes were awarded for start, climb, landing and general impression of safety. The demonstration was a valuable one, and brought out the fine qualities of the Kangaroo for use in countries such as Holland.

THE Triplex Safety Glass Co., Ltd. have now ready to the market two new models of Triplex safety glass goggles that have been specially designed for motorists. There is a model that will appeal to lady motorists and both will be at a reasonable price; the model "A" costing 10s. 6d. and the model "C" 12s. 6d. (including case). The firm consider that both types will give greater range of vision than has been hitherto obtainable. Agents throughout the country will shortly have ample stock, and a list of the agents in any district will be gladly given on application to the Triplex Safety Glass Co., Ltd., 1, Albemarle Street, W. 1.

ACCIDENTS will happen in the best-regulated families, and it is, therefore, as well to be prepared for any emergency. Those who are going in for flying either occasionally or regularly, are reminded that Messrs. Bray, Gibb and Co., Ltd., of 166, Piccadilly, W. 1, effect all classes of insurance both against personal accident while flying, and all risks attaching to aviation generally. They will also give any assistance, in the way of advice, to anyone who is contemplating aerial insurance of any sort.

THE Cambridge School of Flying announce one or two changes in connection with their school at Hardwick, Cambs. They have substituted De H. 6 and Avro machines for the Caudron type, and four courses of tuition are now arranged. The first is on De H. 6 machines, for which the fee is £100; the second is on Avros, the fee being £180; while the other courses are for riggers to gain the Air Ministry certificate. The aerodrome manager is Capt. W. H. Kelley, who has had many years' experience, first in the R.F.C. and lately in the R.A.F.; the pilots are under Capt. R. Birkbeck, D.F.C. while the secretary of the school is Capt. J. L. Lee-Jones, B.A., who will answer any enquiries at 2, Downing Street, Cambridge.

AFTER a strenuous season the staff and employees of Aero Coverings recently enjoyed a trip up the River Thames, a party of about 130 finding accommodation on the steamer *Princess Beatrice*. Fortunately the weather was all that could be desired, and it was obvious that every one thoroughly appreciated the interest and kindly thought of the directors. On arrival at Chertsey a cricket match, "works v. staff," was played to the undoing of the works team, and during the afternoon several employees who had distinguished themselves on the occasion of the fire at the works a little while back, found themselves the victims of a little presentation.

FROM Messrs A. Lloyd and Sons, Ltd., sheet-metal workers, packing-case and crate makers, of 74 and 75, Cheapside, London, E.C. 2, comes particulars of a very handy tool-chest, which can be supplied in any number from stock and on reasonable terms. Strongly made, with dovetailed sides, a lid bound with iron, and an inside tray fitted with five partitions, it measures 20½ ins. by 17½ ins. by 12½ ins. outside. It is painted and finished off in serviceable style. Lloyd and Sons, Ltd., who specialise in all kinds of wood-ware are always pleased to answer enquiries.

COMPANY MATTERS

The Air Navigation Co., Ltd.

It is announced that as and from August 5, 1919, the style and title of this company will be changed to the Air Navigation and Engineering Co., Ltd.

NEW COMPANIES REGISTERED

FIAT MOTORS, LTD., 5, Albemarle Street, W. 1.—Capital £5,000, in £1 shares. Under agreement with Wembley Motors, Ltd., and "Fiat, Turin, Italy," agents and concessionaires for motors, aircraft, etc.

STUBBS AND GARNER, LTD., Lowland Road, Runcorn, Cheshire.—Capital £3,000, in £1 shares. Manufacturers and dealers in aeroplanes, motor cars, etc. L. Stubbs, first director.

AERONAUTICAL SPECIFICATIONS PUBLISHED

Abbreviations:—cyl.=cylinder; I.C.=internal combustion; m.=motors.

APPLIED FOR IN 1917

The numbers in brackets are those under which the Specifications will be printed and abridged, etc.
Published September 4, 1919

17,549. W. G. TARRANT. *Fuselages*. (130,623.)

APPLIED FOR IN 1918

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Published September 4, 1919

- 3,438 and 3,439. D. J. MOONEY and P. J. WALDRAM. Structural members of aircraft. (130,637 and 130,638.)
3,654. R. BOYLE and H. K. REEVES. Parachutes. (130,653.)
3,751. E. G. COLE and C. G. SPENCER AND SONS. Captive, etc., balloons or airships. (130,657.)
3,936. J. E. ELLOR and SIR H. FOWLER. Aircraft engines and propellers. (130,664.)
4,123. and 4,124. A. J. ROBERTS. Airships. (130,668 and 130,669.)
4,187. J. S. WHITE AND CO., A. FORSTER and J. H. BROWN. I.C. engines. (130,673.)
4,549. VICKERS, LTD., SIR J. McKECHNIE and H. B. PRATT. Aerostat structure of rigid airships. (130,689.)
4,557. VICKERS, LTD., and SIR J. McKECHNIE. Rigid airships. (130,690.)
4,559. VICKERS, LTD., and SIR J. McKECHNIE. Cars for aerial machines. (130,691.)
4,632. C. J. COOKE. Non-recoiling guns for aircraft. (130,694.)
4,679. H. W. PHILLIPS and L. C. FORD. Spars, ribs, etc., for aircraft. (130,695.)
4,838. H. J. L. M. DE LA CHEVARDIERE DE LA GRANDVILLE. Propellers. (130,702.)
11,162. P. MOLLOY. Securing together parts of aircraft, etc (130,722.)
11,641. J. COOKE. Inclometers. (130,724.)
11,860. S. E. SAUNDERS. Laminated propellers. (130,725.)
12,473. W. F. SAVAGE and B. H. MALLINSON. Aeroplane wing incidence control. (130,738.)
13,074. W. D. WARNER. Aeroplane control devices. (119,856.)
13,275. A. A. HOLLE. Aerofoils. (130,790.)
13,279. BOULTON AND PAUL and J. D. NORTH. Pulleys for aircraft control cables. (130,791.)
14,418. J. MOORE. Wood spars for aircraft. (130,818.)
14,473. A. J. T. IRELAND. Balancing of airscrews, flywheels, etc. (130,821.)
14,819. S. FULLERTON. Aeroplane wing spars. (130,825.)
18,035. A. G. LEIGH. Aeroplanes. (130,859.)

APPLIED FOR IN 1919

The numbers in brackets are those under which the Specifications will be printed and abridged, etc.
Published September 4, 1919

442. P. SWAN. Aircraft controls. (130,884.)
2,715. E. S. AND N. T. JONES. Dirigible parachutes. (127,803.)
9,742. W. H. APHORPE and CAMBRIDGE SCIENTIFIC INSTRUMENT CO. Spirit, etc., levels. (130,939.)
11,798. H. L. M. J. BENARD. Signal lights. (130,948.)

If you require anything pertaining to aviation, study "FLIGHT'S" Buyers' Guide and Trade Directory, which appears in our advertisement pages each week (see pages xlix, l, li and lii)

NOTICE TO ADVERTISERS.

IN order that "FLIGHT" may continue to be published at the usual time, it is now necessary to close for Press earlier. All Advertisement Copy and Blocks must be delivered at the Offices of "FLIGHT," 36, Great Queen Street, Kingsway, W.C. 2, not later than 12 o'clock on Saturday in each week for the following week's issue.

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Should any difficulty be experienced in procuring "FLIGHT" from local newsvendors, intending readers can obtain each issue direct from the Publishing Office, by forwarding remittance as above.